

**KX4, KXR4, Mini KX4.
Catalogue 2007.**



MITSUBISHI
HEAVY INDUSTRIES, LTD.

Profile	1-3
Technology, Environment, Quality	4-5
Mitsubishi Heavy Industries 2007 Improved Features	6-11
KX4 heat pump (2-pipe) systems	12-21
Refrigerant piping	22
Electrical wiring	23
KXR4 heat recovery (3-pipe) systems	24-33
PFD: refrigerant flow branch controller	34
Refrigerant piping	35
Superlink® centralised control system	36-43
KX4/KXR4: indoor units	44-57
Mini KX4 heat pump (2-pipe) systems	58-63
Memo	64

Over a century of history at the service of technology

Mitsubishi Heavy Industries Ltd is the founder of the Mitsubishi Group, one of the major industrial and financial empires in the world, with a network of as many as 131 industries.

The origin of the brand dates back to the last decade of the nineteenth-century in Nagasaki, where the first big shipyard was established to produce ships for the Japanese navy. Shipbuilding is still one of the most important sectors for Mitsubishi Heavy Industries. Subsequently Mitsubishi implemented a progressive diversification and extension of its activity in heavy industry, as well as in the airplane, rail and car sectors, becoming the biggest private company in Japan in the 1930's. Mitsubishi Heavy Industries still operates in the car sector through its controlled company Mitsubishi Motors.

In the post-war period there was a progressive process of corporate downsizing by American industry for the protection of the same. The competitor Mitsubishi Electric was set up in 1921 as one of these spin offs, producing a limited number of products (electrical engines for boats and fans) and keeping the three-pointed diamond as its logo, just like the parent company.

Today, Mitsubishi Heavy Industries is still a leader in numerous sectors of traditional industry, but it's also one of the major movers of technological innovation in the aviation, aerospace, robotics and renewable energy sectors. The current need for alternative energy resources in fact, sees Mitsubishi Heavy Industries constantly committed to searching for state-of-the-art solutions that can preserve the delicate balance of the ecosystem both today and in the future.



Future and technology for air conditioning

Research and technological innovation have been the company's goals for over a century, and translate into the excellent results that have been obtained in the air conditioning market.

The perfect balance between energy, technology and development – this is what we strive for in the production of air conditioning units designed to meet the plant engineering requirements of the civil, tertiary and industrial sectors.

State-of-the-art solutions applied to high quality products, that guarantee wellbeing, energy saving and living quality.

For a better tomorrow.

Global Mitsubishi Heavy Industries activity

Resources/Energy



- raw oil storage base
- liquid natural gas tanks
- boilers and turbines
- oil production plants
- thermal power plants
- combined cycle plants
- solid oxide fuel cells
- water and wind turbines
- biomass synthesis systems
- nuclear power plants with pressurised water reactors
- uranium enrichment systems
- fast breeder reactors
- co-generation systems

Environment



- ultra-high steel smokestacks
- refuse incineration plants
- night soil treatment plants
- electrostatic precipitators
- fluidized incinerators
- CFC collecting equipment

Industrial



- spillway radial gates
- dams
- steel bridges
- desalination plants
- distribution and logistics equipment
- engines
- wiring and cabling systems

Transportation



- unloader&container cranes
- integrated automated storage systems
- rubber and tyre machineries
- suspended monorail systems
- skyrails
- forklift trucks
- helicopters
- aircraft
- container ships
- railway maintenance equipments
- LNG carrier

Industry



- chemical plants
- wind tunnels/test equipments
- casting machines
- strip mills
- cement plants
- industrial robotics
- injection moulding machines
- pulp&paper machinery
- corrugating machines
- boxmaking machines
- machine tools
- printing machines

Comfort



- air conditioners for residential and commercial applications
- automotive air conditioners
- refrigeration units
- dry cleaning machines
- food machinery
- cruise ships
- multipurpose domes

Research and development



- oceanographic research ships
- deep submergence research vehicles
- communication satellite rockets
- space transportation
- rockets and engines

Defence



- submarines
- naval vessels
- jet fighters
- helicopters
- missiles

By land or sea, in the sky and also in space: the range of interest of Mitsubishi Heavy Industries knows no limits, with the production of over 700 different products for various industrial and civil sectors on the international market.

Ships, civil engineering, power stations, industrial and civil machines, air conditioning units, pollution reduction and environmental control systems, aerospace systems: the rich and varied range of Mitsubishi Heavy Industries products is designed to make the environment liveable and harmonious. This balance derives from over a century of technological leadership which has made the brand famous worldwide for high end products, as result of constant research and development.

The advent of the third millennium saw Mitsubishi Heavy Industries venture into sectors of the greatest importance for the future of the planet: research into alternative energy sources, space exploration, with constant commitment to guarantee development with man and technology in perfect harmony.



Technological evolution

The **Mitsubishi Heavy Industries research laboratories** have always put the study and application of new technologies at the forefront, to support the product development of the highest quality, respecting the environment and creating air-conditioned solutions.

Mitsubishi Heavy Industries air conditioning units use mainly **PAM DC Inverter technology**, which guarantees higher efficiency and energy saving, with the possibility of reaching the required temperature faster and with greater precision.

Technological research has also made it possible to develop high performance products, with very high market values for each class of product.

The studies on the airflow distribution and the application of methods of aerodynamic analysis used in the Jet engines design has led to the development of **Jet Air Scroll technology** which guarantees even temperature, silent running and high air quality in air-conditioned areas.

Technological evolution for the greatest **flexibility** of use and **simplified**

maintenance: sophisticated and practical centralized control instruments make it possible to extend the number of units and systems that can be controlled, for a rational and secure management.



Caring for the environment

Air quality for a better future: this is the mission of **Mitsubishi Heavy Industries**, which boasts Energy Efficiency Rating A for most of its products.

All products use **R410A**, an eco-friendly bi-component CFC-free gas, which guarantees the maximum efficiency and economic management thanks to the possibility of partial recharging.

As the recent application of **RoHs standards** on the European market involves restrictions on the use of some harmful substances for the

environment, **Mitsubishi Heavy Industries** increased its efforts to search for eco-compatible solutions.

This resulted in the development of the **PbF propriety method**, which allows for the production of electronic boards welded using materials that do not contain lead, guaranteeing total quality and reliability.



Total wellbeing

Ideal climatic conditions every month of the year; functional and **detailed design; air quality; silent running** and **maximum energy saving**. These are the features that **Mitsubishi Heavy Industries** offers for the desired wellbeing.

All products of the range have **filtering** and **air purifying systems** that can clean the air in the room to prevent allergies and respiratory diseases, contrasting and completely destroying the formation of bacteria and mould.



Quality

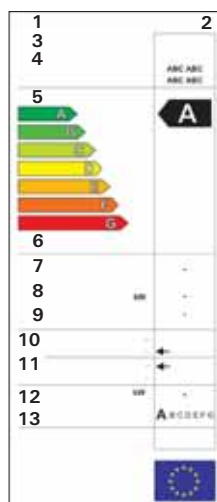


All the **Mitsubishi Heavy Industries** products are ISO 9001 and 14001 certified and are part of the Eurovent certification programme. The CE marking makes it possible to sell the products on the European market.

Energy labelling

According to EU standards, since 2004 air conditioning units up to 12 kW refrigerating power must have an Energy label. This is mainly to classify the level of consumption on the basis of the ratio between thermal performance and energy consumption.

Example of Energy Label



- 1 Energy.
- 2 Air conditioner.
- 3 Manufacturer.
- 4 Outdoor Units-Indoor Units.
- 5 Low consumption.
- 6 High consumption.
- 7 Annual energy consumption, kW/h in cooling mode.
- 8 Cooling output kW.
- 9 Energy efficiency ratio.
- 10 Type: cooling only; cooling & heating; air cooling; water cooling.
- 11 Heat output (kW).
- 12 Heating mode performance A: low consumption; G: high consumption.
- 13 Noise level in dB(A).

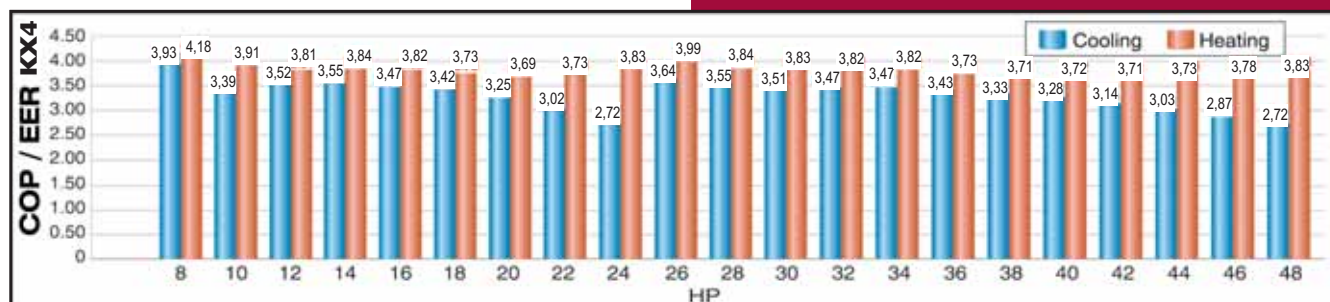
KX4/KXR4

The VRF Inverter KX4/KXR4 Multi-system is the result of the standards of excellence reached by Mitsubishi Heavy Industries after years of impassioned technological research in the residential and commercial air conditioning sector.

A reliable and highly efficient system, which puts Mitsubishi Heavy Industries at the forefront in air conditioning for buildings of medium and large dimensions, where centralised management, energy savings, and the functionality of the control devices are essential elements.

High COP

The KX4/KXR4 system reaches the highest levels of reliability and energy efficiency: the coefficients of performance (COP) of the range have first rate values in the market, guaranteeing a reduction in environmental impact and running costs.



We can reach such high COP values thanks to:

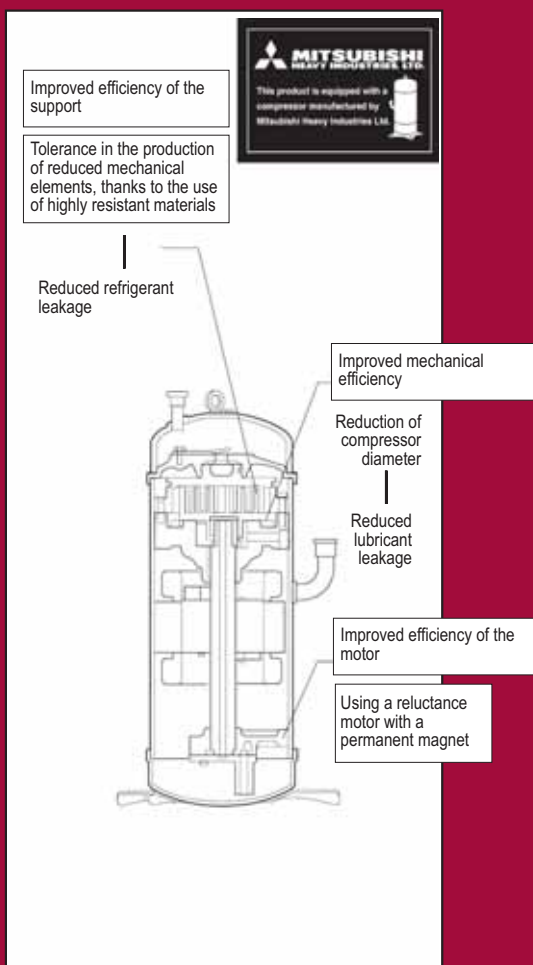
- the use of R410A refrigerating gas;
- the use of the DC Inverter compressor;
- the improvement of the external exchanger's performance;
- better control of the electronic expansion valves (EEV), equipped with additional sensors;
- the type of motor used on the external DC fan.

R410A Eco-friendly Gas

All the products of the range use the R410A refrigerant which, as well as being eco-compatible as it is CFC-free, is also more effective than other coolants commonly used.

In fact, thanks to its density, it's possible to use refrigerant pipes with a reduced diameter in both circuits (liquid and gas), with the consequent reduction in the volume of refrigerant, as well as a significant reduction in the times and costs of installation.





The DC Inverter compressor

All the models of the KX4/KXR4 range use variable speed control DC Inverter compressors, with an improvement in the performance and efficiency thanks to the self-adjustment of the output to suit the actual demand of the indoor units.

The possibility of leaks of refrigerant or lack of lubrication for the axial bearings is reduced thanks to the new design of the scroll, made of highly resistant materials.

A magnet is used to engage the rotor of the motor to improve efficiency at low speed. The IPM (Intelligent Power Module) device and the high voltage drive motor further increase the efficiency of the unit.

Furthermore, the Inverter control reduces start-up and shutdown times on each compressor, balancing the operating hours between the same.

State-of-the-art technologies

The DC Inverter motor is equipped with fans designed by the Mitsubishi Heavy Industries aerospace department, the serrated edges of which make it possible to increase the air volume with a reduced energy consumption.

The electronic expansion valves adapt constantly to the operating speed, making it possible to control the pressure and expansion of the refrigerant, both in the heating and cooling operations.

The presence of an accumulator stores the coolant that is not used during the low-demand cycles, optimizing the flow in the gas phase.

The fans on the top of the unit extend the heat exchanger surfaces on 4 sides, optimizing the performance. Access to the sensors of the heat exchangers for the relevant maintenance operations is easy thanks to the fully accessible front with the pipes connecting the condensers at the front of the unit.

The vertical configuration of the fans makes it possible to duct the air outlet at a static pressure of 50Pa in normal conditions. The indoor units can be located in closed environments and equipped with an external ducted air outlet through a ventilation slot.



Ultra-compact Design

The compact design of the outdoor units of the KX4/KXR4 series is unmatched, as all models from 8HP to 24HP have the same structural characteristics. The design and the reduced footprint dimensions make it possible to find a solution to many limits often dictated by the space available for installation. These characteristics, as well as guaranteeing the optimization of spaces and the installation work, also make it possible to interchange with other models of the Mitsubishi Heavy Industries range, leaving space for the installation of other equipment.

The KX4/KXR4 units can also be incorporated in previous KX2 series installations, without having to change the basic structure, as the width and depth are compatible with the previous (KX-KX2 8-10HP) models.

Refrigerant piping

The refrigerant pipe lengths permitted for the KX4/KXR4 series are the longest on the market: with up to 160 m for each single module and a total length of 510 m on the 8 - 24HP models. This characteristic allows greater flexibility in the planning and development phase of the air conditioning system.

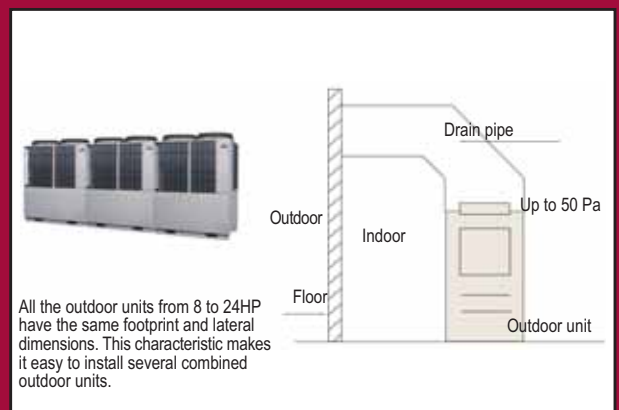
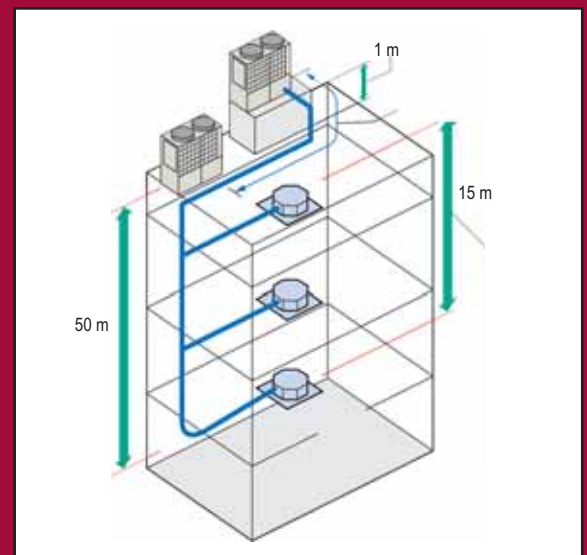
Thanks to the separation of the exchanger and compressor compartments the refrigerant pipes can easily be laid out in each of the four directions. The possibility of installing the refrigerant connections on the back of the unit makes installation in series easier and increases the front space optimizing the management of servicing and maintenance operations.

Reduced installation space

The reduction of the installation spaces required, thanks to the ultra-compact design and the availability of single modules up to 24HP, is also determined by the possibility of being able to install the units in series, in other words without any space between one machine and the next.

Installation in series guarantees an excellent aesthetic result, leaving space for other installations, functional or in series, and permits to replace parts and update the plant at a later date, in the same space as was originally set aside for the plant.

Same footprint for models from 8 to 24HP



All the outdoor units from 8 to 24HP have the same footprint and lateral dimensions. This characteristic makes it easy to install several combined outdoor units.



Easy to transport

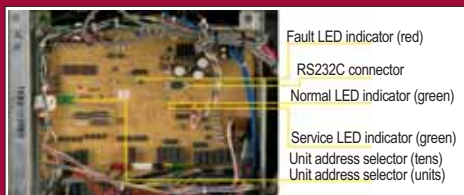
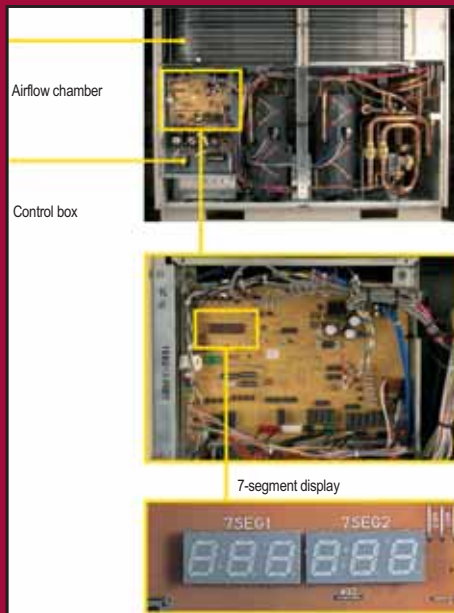
The units are fitted with a practical base which makes it easy to lift and transport them; no wooden pallet is required, just a forklift truck, a hoist or slings passing through the holes in the base. Furthermore, as there is no difference between "master" and "slave" units, no special components are required, nor is any particular transportation and positioning of the unit, making the installation work fast and easy.

Easy service and maintenance

To check the functional and operational state of the system simply connect a Laptop to the outdoor unit. Any problem solving is made faster thanks to the possibility of gathering the operating data both when the machine is running and in the case of an error, and when the unit is in a test phase. The data can be downloaded and analysed statistically using the optional software programme. The values and parameters of any errors can be displayed on a large display.

The test mode can be activated with a switch on the electronic board of the outdoor unit, to check for any installation errors.

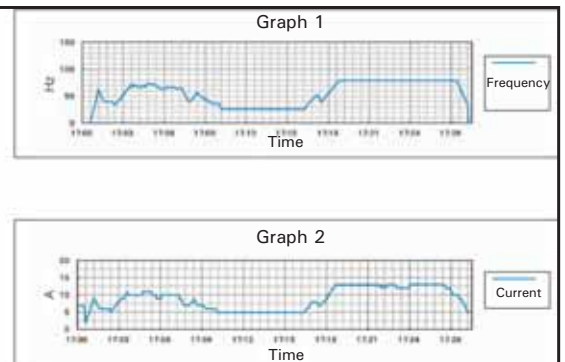
In the case of a fault on one of the 2 compressors (14 - 24HP models for single units and for all combined units), the system automatically goes into "emergency" mode, with just one compressor running to avoid the total shutdown of the plant, guaranteeing operational continuity. In the case of an anomaly, the operating parameters relevant to the 30 minutes before the problem arose are saved automatically, making diagnostics and fault-finding fast and easy.



K24 series operation data sheet (Outdoor unit)

Customer name		Building contents		Start on date		Start on time		Start on location		Start on person	
1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132
133	134	135	136	137	138	139	140	141	142	143	144
145	146	147	148	149	150	151	152	153	154	155	156
157	158	159	160	161	162	163	164	165	166	167	168
169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192
193	194	195	196	197	198	199	200	201	202	203	204
205	206	207	208	209	210	211	212	213	214	215	216
217	218	219	220	221	222	223	224	225	226	227	228
229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252
253	254	255	256	257	258	259	260	261	262	263	264
265	266	267	268	269	270	271	272	273	274	275	276
277	278	279	280	281	282	283	284	285	286	287	288
289	290	291	292	293	294	295	296	297	298	299	300

Mitsubishi Heavy Industries Sales Company



Using the relevant software (Mente PC) it is possible to create reports with operating data and any anomalies.

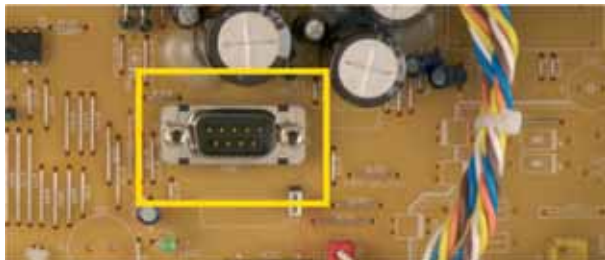
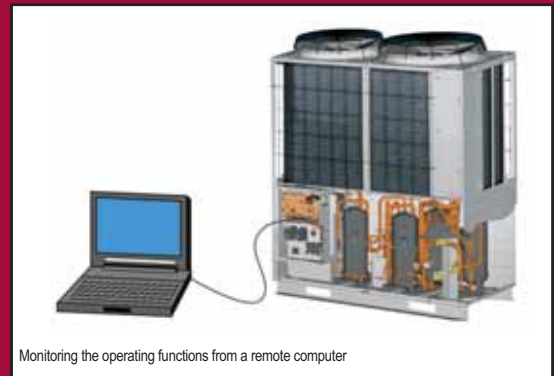
The Superlink® centralized control system

The exclusive Mitsubishi Heavy Industries Superlink fast data transmission system, which in the past was only dedicated to highly sophisticated systems, is used today to connect residential and commercial air conditioning units in a network and control them from a remote station, optimising the management of small, medium and large surfaces.

Up to 48 units can be connected in a network per line, and controlled from a remote station.

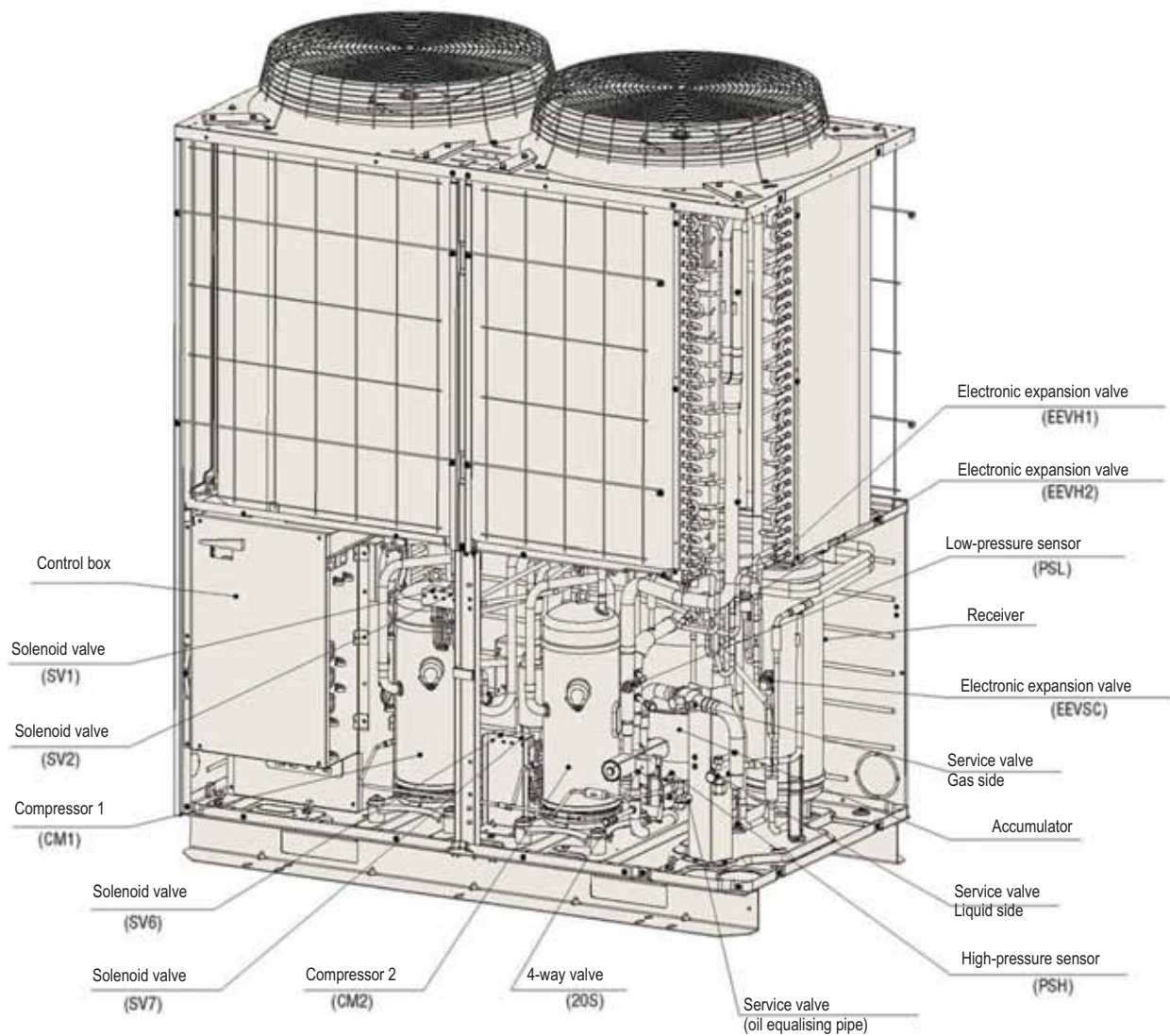
The wide range of individual and centralized controls, and the possible combined use, makes it possible to develop differentiated modular systems for each control zone.

The use of Superlink reduces the wiring required, thanks to a cable with 2 non-polarized wires: when the plant is designed this makes integrated planning simple with a significant reduction in the installation costs.



RS232C connector

KX4/KXR4 Outdoor unit



Low-pressure sensor: device that prevents refrigerant leaks.

Electronic expansion valve: with continuous adjustment, this optimizes the refrigerant flow and guarantees the pressure control and the expansion of the coolant flow on the basis of the different loads, both in the cooling and heating mode.

High-pressure sensor: device that protects the compressor from overloads or malfunctions in the refrigerant circuit.

Accumulator: this stores the refrigerant that isn't used during low demand periods, optimising the flow in the gas phase.

DC Inverter compressor: with variable speed control, so the output is always exactly proportional to the demand of the indoor units.

KX4

KX4 modular heat pump systems

Thanks to its compact and modular characteristics the KX4 series heat pump system meets the new air conditioning requirements of medium and large buildings to perfection, with cooling and heating operation of all the indoor units connected. The system can condition a single flat or a whole multi-storey building, and is suitable for particularly vast open space environments.

The range starts with an 8HP model, up to the maximum capacity value for a single outdoor unit on the market (24HP), with a cooling capacity of 68 kW.

The outdoor units can also be combined providing up to 48HP/136 kW on a single system.

Branch piping set (opt.)	Total capacity of the I.U. downstream of the branch	
DIS-22-1	< 18 kW	
DIS-180-1	> 18 kW - < 37,1 kW	
DIS-371-1	> 37,1 kW - < 54 kW	
DIS-540-1	> 54 kW	
Header set (opt.)*	Max. branches	
HEAD4-22-1R	< 18 kW	4
HEAD6-180-1R	> 18 kW - < 37,1 kW	6
HEAD8-371-1R	> 37,1 kW - < 54 kW	8
HEAD8-540-1R	> 54 kW	8
Outdoor unit branch piping set **		
DOS-2A-1	for 2 units (from 735 to 1360)	

* Cannot be connected to FDU 224 and 280 model headers.
 ** To use only with 2 combined outdoor units and not for a stand-alone installation.

Heat pump units				
	8HP	10HP	12HP	14HP
	FDC A224HKXE4R*	FDC A280HKXE4R*	FDC A335HKXE4R* FDC A335HKXE4R-K	FDC A400HKXE4R
				
	16HP	18HP	20HP	22HP
	FDC A450HKXE4R	FDC A504HKXE4R	FDC A560HKXE4R	FDC A615HKXE4R
Combinations of heat pump units				
	26HP	28HP	30HP	
	FDC A735HKXE4R (FDC A335HKXE4R-K+FDC A400HKXE4R)	FDC A800HKXE4R (FDC A400HKXE4R+FDC A400HKXE4R)	FDC A850HKXE4R (FDC A400HKXE4R+FDC A450HKXE4R)	
				
	32HP	34HP	36HP	
	FDC A900HKXE4R (FDC A450HKXE4R+FDC A450HKXE4R)	FDC A960HKXE4R (FDC A450HKXE4R+FDC A504HKXE4R)	FDC A1010HKXE4R (FDC A504HKXE4R+FDC A504HKXE4R)	
				
	38HP	40HP	42HP	
	FDC A1065HKXE4R (FDC A504HKXE4R+FDC A560HKXE4R)	FDC A1130HKXE4R (FDC A560HKXE4R+FDC A560HKXE4R)	FDC A1180HKXE4R (FDC A560HKXE4R+FDC A615HKXE4R)	
				
	44HP	46HP	48HP	
	FDC A1235HKXE4R (FDC A615HKXE4R+FDC A615HKXE4R)	FDC A1300HKXE4R (FDC A615HKXE4R+FDC A680HKXE4R)	FDC A1360HKXE4R (FDC A680HKXE4R+FDC A680HKXE4R)	

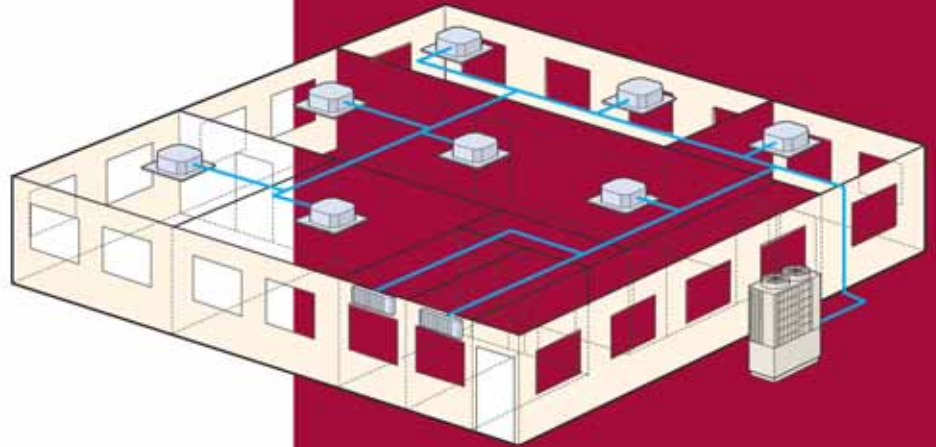
* These models of outdoor units aren't modular, therefore they can only be used in stand-alone mode. For the 26HP combination (14HP + 12HP) must be used the outdoor unit FDC A335HKXE4RK.

Number of indoor units available for combinations

Up to 48 indoor units, of 12 different types and capacities, for a total of roughly 61 models can be connected to the higher capacity outdoor unit.

HP equivalent	8	10	12	14	16	18	20	22	24	26	28
Model	FDC A224HKXE4R	FDC A280HKXE4R	FDC A335HKXE4R FDC A335HKXE4R-K	FDC A400HKXE4R	FDC A450HKXE4R	FDC A504HKXE4R	FDC A560HKXE4R	FDC A615HKXE4R	FDC A680HKXE4R	FDC A735HKXE4R	FDC A800HKXE4R
N. of connectable units	1-13	1-16	1-20	1-23	1-26	1-29	1-33	2-36	2-40	2-43	2-47

HP equivalent	30	32	34	36	38	40	42	44	46	48
Model	FDC A850HKXE4R	FDC A900HKXE4R	FDC A960HKXE4R	FDC A1010HKXE4R	FDC A1065HKXE4R	FDC A1130HKXE4R	FDC A1180HKXE4R	FDC A1235HKXE4R	FDC A1300HKXE4R	FDC A1360HKXE4R
N. of connectable units	2-48	2-48	2-48	2-48	2-48	3-48	3-48	3-48	3-48	3-48



It is possible to programme the operating mode of the system for cooling or heating using selector SW3-7 installed on the PCB (Printed Circuit Board) of the outdoor unit. This lets the users of the building define the operating mode of the system, for example only cooling in summer, and only heating in the winter, avoiding unwanted energy consumption.

Furthermore, it is possible to install the control switch in a remote position in the building or connect it to a room thermostat.

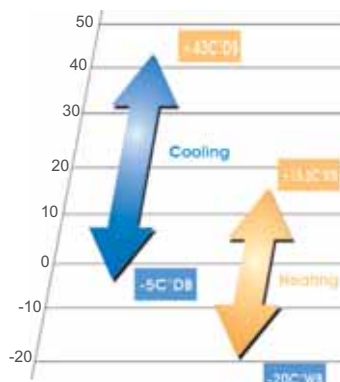


KX4 modular heat pump systems

8-16HP (22.4-45.0kW)

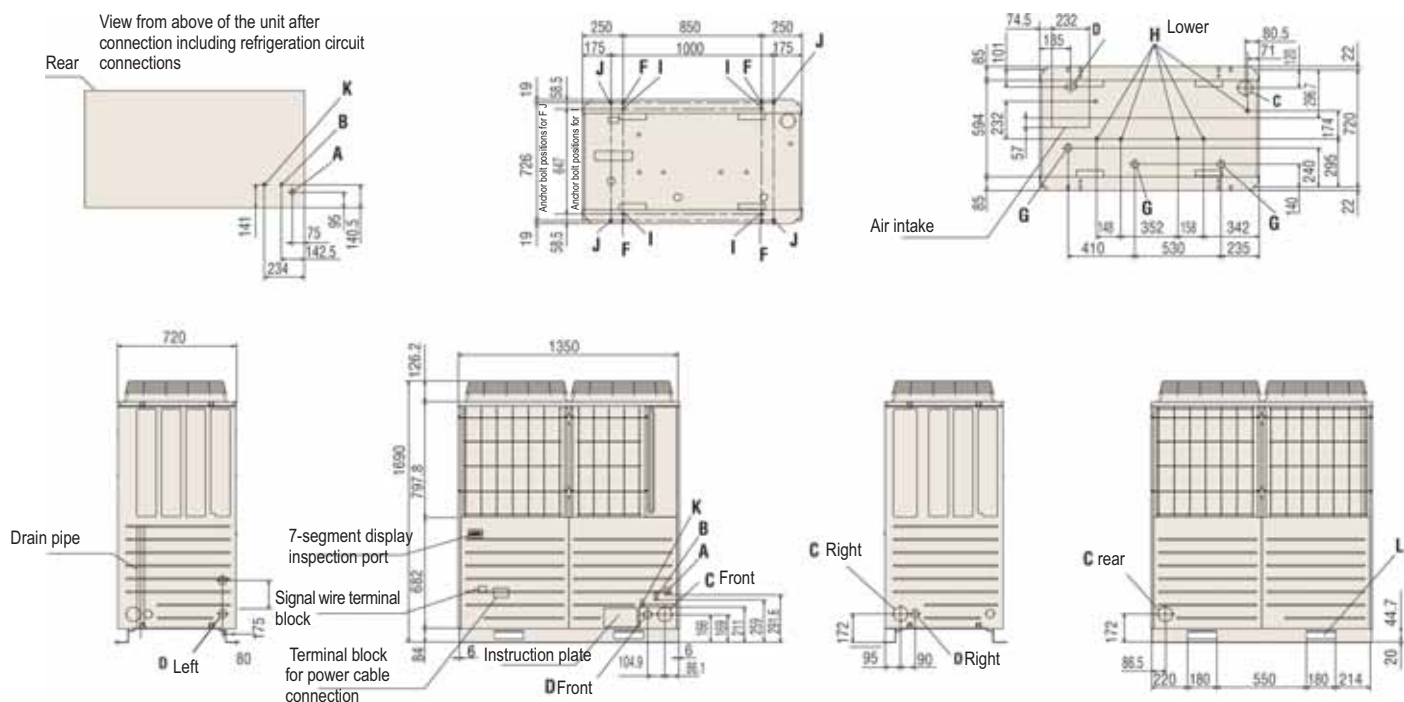
FDCA224HKXE4R 22.4kW
 FDCA280HKXE4R 28.0kW
 FDCA335HKXE4R 33.5kW
 FDCA335HKXE4R-K 33.5kW
 FDCA400HKXE4R 40.0kW
 FDCA450HKXE4R 45.0kW

- The KX4 VRF 2-pipe heat pump system guarantees excellent performance for applications that need to function only in the cooling mode, or only in the heating mode, and it is therefore ideal for open spaces.
- Connects up to 26 indoor units/130% of the capacity
- Maximum efficiency, with COP values from 3.81 to 4.18 and EER from 3.35 to 3.93.
- The length of the piping is the longest available on the market: up to 510 m total length, and with a max. pipe length of 160 m.



Heating function with external temperatures down to -20°C (wet bulb)

MODEL		FDCA	224 HKXE4R	280 HKXE4R	335 HKXE4R	400 HKXE4R	450 HKXE4R
Power source		HP	8	10	12	14	16
Cooling capacity		kW	22,40	28,00	33,50	40,00	45,00
Heating capacity		kW	25,00	31,50	37,50	45,00	50,00
ELECTRICAL DATA							
Power		Ph-V-Hz	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ
Power absorption - cooling		kW	5,70	8,26	9,53	11,27	12,97
Power absorption - heating		kW	5,98	8,06	9,84	11,73	13,10
EER			3,93	3,39	3,52	3,55	3,47
COP			4,18	3,91	3,81	3,84	3,82
Current - cooling		A	9,6~8,8	13,6~12,4	15,5~14,2	18,4~16,9	21,1~19,3
Current - heating		A	9,6~8,8	13,3~12,2	16,3~14,9	19,6~17,9	21,7~19,9
DIMENSIONS							
External dimensions	height x width x depth	mm	1690x1350x720	1690x1350x720	1690x1350x720	1690x1350x720	1690x1350x720
Net weight		Kg	240/245	240/245	245	290/310	290/310
REFRIGERATION CIRCUIT							
Refrigerant			R410A	R410A	R410A	R410A	R410A
Refrigerant pre-charge		Kg	14,2	14,2	14,2	17,0	17,0
Heat exchanger			Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes
Refrigerant control			Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve
AIR CONDITIONING							
Type and quantity			Axial fan x 2	Axial fan x 2	Axial fan x 2	Axial fan x 2	Axial fan x 2
Motor		W	120 x 2	120 x 2	386 x 2	386 x 2	386 x 2
Airflow and head	Cool./Heat.	m³/min (Pa)	220/180 (0, max 50)	220/180 (0, max 50)	280/260 (0, max 50)	250/220 (0, max 50)	260/240 (0, max 50)
Max. noise level		dB(A)	57	58	60,5/61	58,5/59	61/61
PIPE SPECIFICATIONS							
Pipe diameter	Liquid line	mm (in)	ø9.52 (3/8")	ø9.52 (3/8")	ø12.70 (1/2")	ø12.70 (1/2")	ø12.70 (1/2")
	Discharge gas line	mm (in)	-	-	-	-	-
	Suction gas line	mm (in)	ø19.05 (3/4")	ø22.22 (7/8")	ø25.4 (1")	ø25.4 (1")	ø28.58 (9/8")
Connection method			Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded
Capacity control		%	27~16	20~114	19~117	15~114	13~112
N. of connectable I.U.			13	16	20	23	26



Rif.	Item	
A	Gas side piping connection	For the refrigerant piping, please refer to the O.U. specifications
B	Liquid side piping connection	
C	Outlet for refrigerant piping	Ø88
D	Opening for power cables	Ø50
F	Hole for anchor bolts	M10, 4 holes
G	Drain pipe connection	Ø45, 3 holes
H	Drain hole	Ø20, 6 holes
K*	Oil equalising pipe connection	Ø3/8" (flare)
L	Opening for handling	180x44.7

*14-16 HP models only

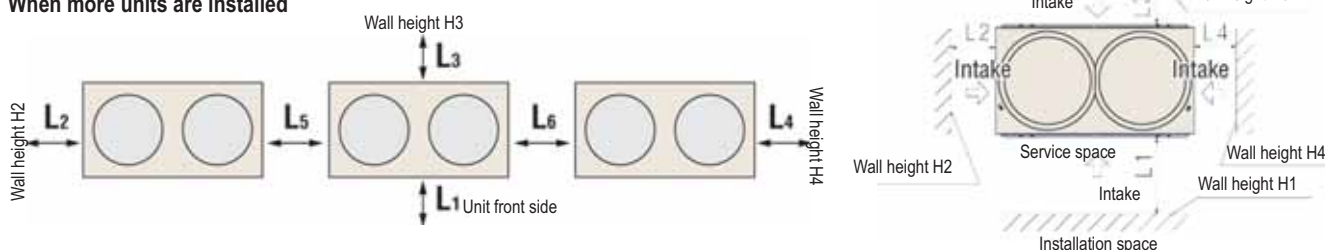
Dimensions	Installation example	
	1	2
L1	500	open
L2	10	10
L3	100	100
L4	10	open
H1	1500	-
H2	not limited	not limited
H3	1000	not limited
H4	not limited	-

Notes

- (1) Fix the unit with the anchor bolts.
- (2) Leave at least 2m free space above the unit.
- (3) The decal with the installation data shall be positioned under the front panel (right side).
- (4) Openings for electric wiring and refrigerant piping are knock out (open with a cutter).
- (5) For the piping inlet, use the Ø88 hole or the Ø100 hole depending on the installation requirements.
- (6) Use the fixing holes (M10x4) marked with "L" and "J" in case of replacement of an outer unit of the previous series.
- (7) Connect the refrigeration oil equalising pipe ("K") in case of combined use of the outer unit (only for 14-16HP models).

Dimensions	Installation example	
	A	B
L1	500	open
L2	10	200
L3	100	300
L4	10	open
L5	0	400
L6	0	400
H1	1500	not limited
H2	not limited	not limited
H3	1000	not limited
H4	not limited	not limited

When more units are installed



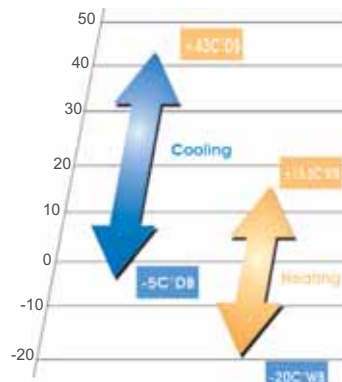
All of the measurements shown are in mm.
Calculation of the noise levels: 1 m from front part of the unit; 1 m in height.

KX4 modular heat pump systems

18-24HP (50.4-68.0kW)

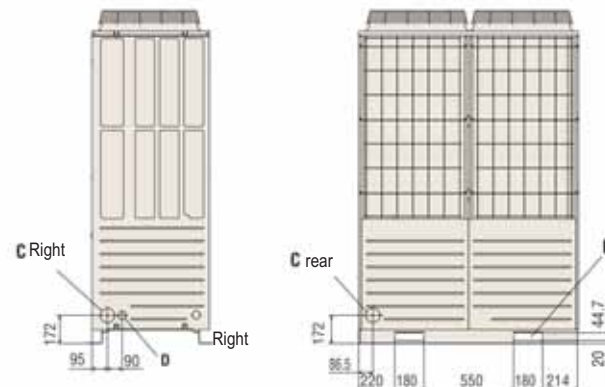
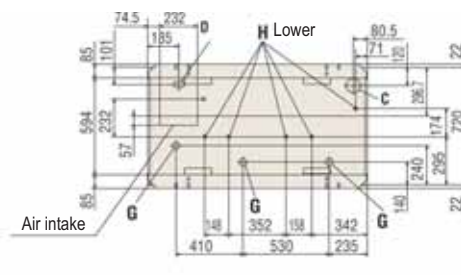
FDCA504HKXE4R 50.4kW
FDCA560HKXE4R 56.0kW
FDCA615HKXE4R 61.5kW
FDCA680HKXE4R 68.0kW

- The KX4 VRF 2-pipe heat pump system guarantees excellent performance for applications that need to function only in the cooling mode, or only in the heating mode, and it is therefore ideal for open spaces.
- Connects up to 40 indoor units/130% of the capacity
- Maximum efficiency, with COP values from 3.69 to 3.83 and EER from 2.72 to 3.42.
- The length of the piping is the longest available on the market: up to 510 m total length, and with a max. pipe length of 160 m.



Heating function with external temperatures down to -20°C (wet bulb)

MODEL		FDCA	504 HKXE4R	560 HKXE4R	615 HKXE4R	680 HKXE4R
Power source		HP	18	20	22	24
Cooling capacity		kW	50,40	56,00	61,50	68,00
Heating capacity		kW	56,50	63,00	69,00	73,00
ELECTRICAL DATA						
Power		Ph-V-Hz	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ
Power absorption - cooling		kW	14,73	17,21	20,37	24,98
Power absorption - heating		kW	15,15	17,07	18,48	19,08
EER			3,42	3,25	3,02	2,72
COP			3,73	3,69	3,73	3,83
Current - cooling		A	24,1~22,0	28,2~25,8	33,1~30,3	40,3~36,9
Current - heating		A	25,2~23,1	28,5~26,1	30,7~28,1	31,6~29,0
DIMENSIONS						
External dimensions	height x width x depth	mm	2048x1350x720	2048x1350x720	2048x1350x720	2048x1350x720
Net weight		Kg	340	340	360	360
REFRIGERATION CIRCUIT						
Refrigerant			R410A	R410A	R410A	R410A
Refrigerant pre-charge		Kg	19,4	19,4	26,2	26,2
Heat exchanger			Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes
Refrigerant control			Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve
AIR CONDITIONING						
Type and quantity			Axial fan x 2	Axial fan x 2	Axial fan x 2	Axial fan x 2
Motor		W	386 x 2	386 x 2	386 x 2	386 x 2
Airflow and head	Cool./Heat.	m³/min (Pa)	270/250 (0, max 50)	270/250 (0, max 50)	270/250 (0, max 50)	270/250 (0, max 50)
Max. noise level		dB(A)	60/60,5	60,5/62,5	63	63,5
PIPE SPECIFICATIONS						
Pipe diameter	Liquid line	mm (in)	ø12.70 (1/2")	ø12.70 (1/2")	ø12.70 (1/2")	ø12.70 (1/2")
	Discharge gas line	mm (in)	-	-	-	-
	Suction gas line	mm (in)	ø28.58 (9/8")	ø28.58 (9/8")	ø28.58 (9/8")	ø28.58 (9/8")
Connection method			Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded
Capacity control		%	11~100	10~113	9~110	8~108
N. of connectable I.U.			29	33	36	40



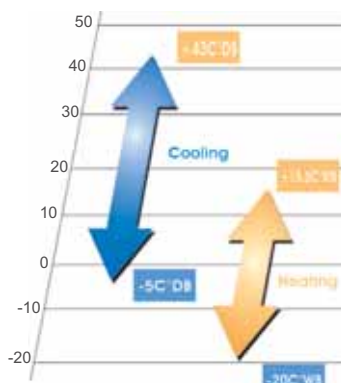
Dimensions	Installation example	
	1	2
L1	500	open
L2	10	10
L3	100	100
L4	10	open
H1	1500	-
H2	not limited	not limited
H3	1000	not limited
H4	not limited	-

KX4 modular heat pump systems

26-32HP (73.5-90.0kW)

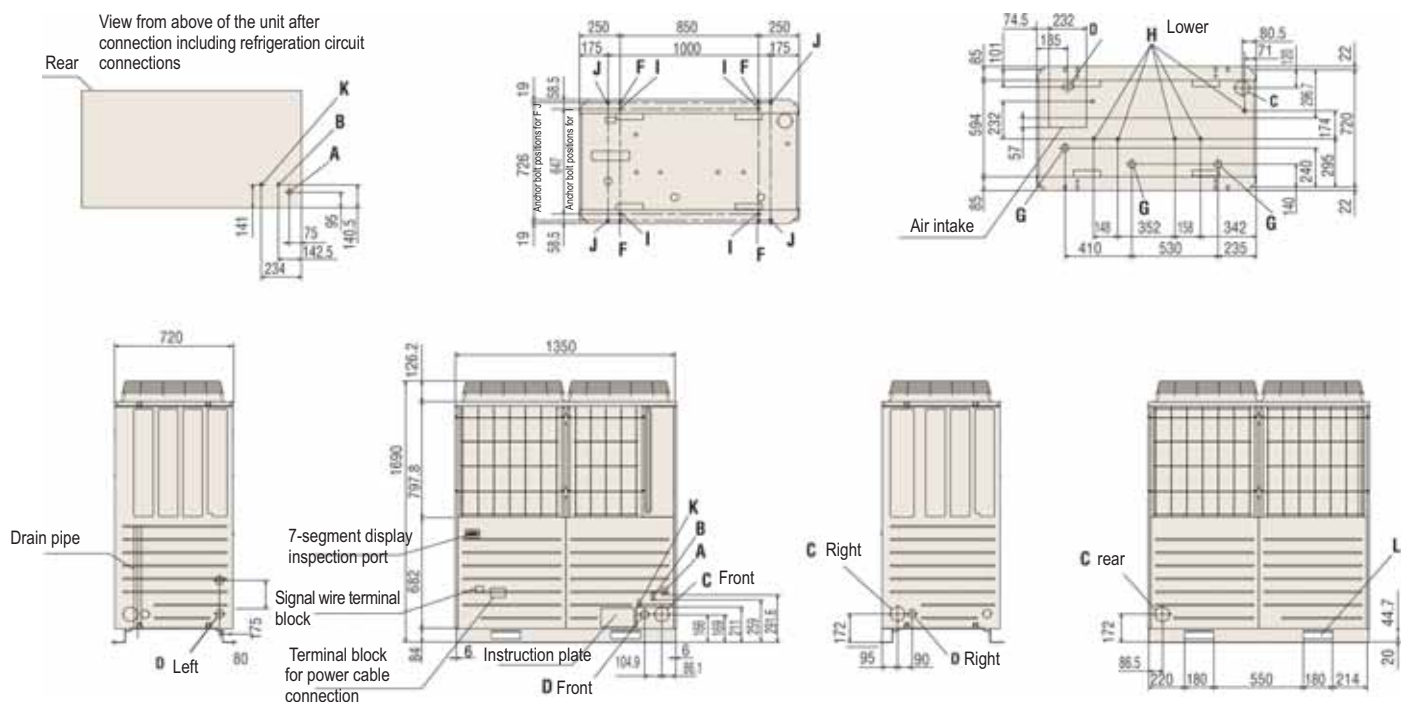
FDCA735HKXE4R (FDCA335R + FDCA400R) 73.5kW
 FDCA800HKXE4R (FDCA400R + FDCA400R) 80.0kW
 FDCA850HKXE4R (FDCA400R + FDCA450R) 85.0kW
 FDCA900HKXE4R (FDCA450R + FDCA450R) 90.0kW

- The KX4 VRF 2-pipe heat pump system guarantees excellent performance for applications that need to function only in the cooling mode, or only in the heating mode, and it is therefore ideal for open spaces.
- Connects up to 48 indoor units/130% of the capacity
- Maximum efficiency, with COP values from 3.82 to 3.99 and EER from 3.47 to 3.64.
- The length of the piping is the longest available on the market: up to 510 m total length, and with a max. pipe length of 160 m.
- Double units can be connected up to a distance of 10 m.



Heating function with external temperatures down to -20°C (wet bulb)

MODEL		FDCA	735 HKXE4R	800 HKXE4R	850 HKXE4R	900 HKXE4R
Power source		HP	26	28	30	32
Cooling capacity		kW	73,50	80,00	85,00	90,00
Heating capacity		kW	82,50	90,00	95,00	100,00
ELECTRICAL DATA						
Power		Ph-V-Hz	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ
Power absorption - cooling		kW	20,21	22,54	24,24	25,94
Power absorption - heating		kW	20,66	23,46	24,83	26,20
EER			3,64	3,55	3,51	3,47
COP			3,99	3,84	3,83	3,82
Current - cooling		A	32,9~30,2	36,8~33,7	39,5~36,2	42,2~38,6
Current - heating		A	34,4~31,4	39,2~35,8	41,3~37,8	43,4~39,8
DIMENSIONS						
External dimensions	height x width x depth	mm	(1690x1350x720) x 2	(1690x1350x720) x 2	(1690x1350x720) x 2	(1690x1350x720) x 2
Net weight		Kg	310x2	310x2	310 x 2	310 x 2
REFRIGERATION CIRCUIT						
Refrigerant			R410A	R410A	R410A	R410A
Refrigerant pre-charge		Kg	34	34	34	34
Heat exchanger			Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes
Refrigerant control			Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve
AIR CONDITIONING						
Type and quantity			Axial fan x 4	Axial fan x 4	Axial fan x 4	Axial fan x 4
Motor		W	386 x 4	386 x 4	386 x 4	386 x 4
Airflow and head		m³/min (Pa)	220+250 (0, max 50)	250 x 2 (0, max 50)	250+260 (0, max 50)	260 x 2 (0, max 50)
Max. noise level		dB(A)	60,5/61	61,5/62	63	64
PIPE SPECIFICATIONS						
Pipe diameter	Liquid line	mm (in)	ø12.70 (1/2")	ø12.70 (1/2")	ø12.70 (1/2")	ø12.70 (1/2")
	Discharge gas line	mm (in)	-	-	-	-
	Suction gas line	mm (in)	ø28.58 (9/8")	ø28.58 (9/8")	ø28.58 (9/8")	ø28.58 (9/8")
Connection method			Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded
Capacity control		%	8~123	4~114	4~112	4~112
N. of connectable I.U.			43	47	48	48



Rif.	Item	
A	Gas side piping connection	For the refrigerant piping, please refer to the O.U. specifications
B	Liquid side piping connection	
C	Outlet for refrigerant piping	Ø88
D	Opening for power cables	Ø50
F	Hole for anchor bolts	M10, 4 holes
G	Drain pipe connection	Ø45, 3 holes
H	Drain hole	Ø20, 6 holes
K	Oil equalising pipe connection	Ø3/8 (flare)
L	Opening for handling	180x44.7

Notes

- (1) Fix the unit with the anchor bolts.
- (2) Leave at least 2m free space above the unit.
- (3) The decal with the installation data shall be positioned under the front panel (right side).
- (4) Openings for electric wiring and refrigerant piping are knock out (open with a cutter).
- (5) For the piping inlet, use the Ø88 hole or the Ø100 hole depending on the installation requirements.
- (6) Use the fixing holes (M10x4) marked with "L" and "J" in case of replacement of an outer unit of the previous series.
- (7) Connect the refrigeration oil equalising pipe ("K") in case of combined use of the outer unit.

All of the measurements shown are in mm.
Calculation of the noise levels: 1 m from front part of the unit; 1 m in height.

KX4 modular heat pump systems

34-48HP (96.0-136.0kW)

FDCA960HKXE4R (FDCA450R + FDCA504R) 96.0kW
 FDCA1010HKXE4R (FDCA504R + FDCA504R) 101.0kW
 FDCA1065HKXE4R (FDCA504R + FDCA560R) 106.5kW
 FDCA1130HKXE4R (FDCA560R + FDCA560R) 113.0kW
 FDCA1180HKXE4R (FDCA560R + FDCA615R) 118.0kW
 FDCA1235HKXE4R (FDCA615R + FDCA615R) 123.5kW
 FDCA1300HKXE4R (FDCA615R + FDCA680R) 130.0kW
 FDCA1360HKXE4R (FDCA680R + FDCA680R) 136.0kW

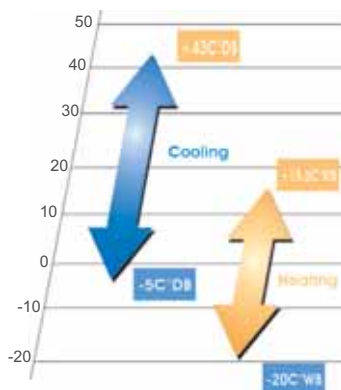


- The KX4 VRF 2-pipe heat pump system guarantees excellent performance for applications that need to function only in the cooling mode, or only in the heating mode, and it is therefore ideal for open spaces.

- Connects up to 48 indoor units/130% of the capacity
- Maximum efficiency, with COP values from 3.71 to 3.83 and EER from 2.72 to 3.47.

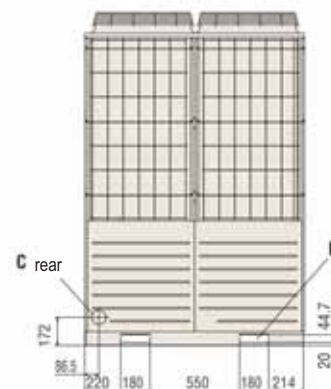
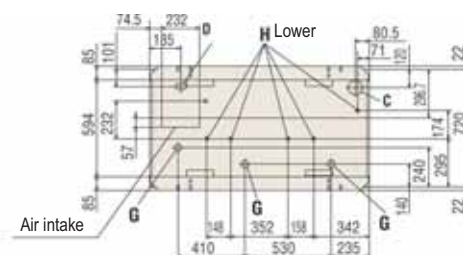
- The length of the piping is the longest available on the market: up to 510 m total length, and with a max. pipe length of 160 m.

- Double units can be connected up to a distance of 10 m.



Heating function with external temperatures down to -20°C (wet bulb)

MODEL		FDCA	960HKXE4R	1010HKXE4R	1065HKXE4R	1130HKXE4R	1180HKXE4R	1235HKXE4R	1300HKXE4R	1360HKXE4R
Power source		HP	34	36	38	40	42	44	46	48
Cooling capacity		kW	96,00	101,00	106,50	113,00	118,00	123,5	130,00	136,00
Heating capacity		kW	108,00	113,00	119,50	127,00	132,00	138,00	142,00	146,00
ELECTRICAL DATA										
Power		Ph-V-Hz	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ
Power absorption - cooling		kW	27,70	29,46	31,94	34,42	37,58	40,74	45,35	49,96
Power absorption - heating		kW	28,25	30,30	32,22	34,14	35,55	36,96	37,56	38,16
EER			3,47	3,43	3,33	3,28	3,14	3,03	2,87	2,72
COP			3,82	3,73	3,71	3,72	3,71	3,73	3,78	3,83
Current - cooling		A	45,2~41,3	48,2~44,0	52,3~47,8	56,4~51,6	61,3~56,1	66,2~60,6	73,4~67,2	80,6~73,8
Current - heating		A	46,9~43,0	50,4~46,2	53,7~49,2	57,0~52,2	59,2~54,2	61,4~56,2	62,3~57,1	63,2~58,2
DIMENSIONS										
External dimensions	height x width x depth	mm	(1690x1350x720)x1	(2048x1350x720)x2	(2048x1350x720)x2	(2048x1350x720)x2	(2048x1350x720)x2	(2048x1350x720)x2	(2048x1350x720)x2	(2048x1350x720)x2
Net weight		Kg	315 + 340	340 x 2	340 x 2	340 x 2	340 + 360	360 x 2	360 x 2	360 x 2
REFRIGERATION CIRCUIT										
Refrigerant			R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant pre-charge		Kg	36,4	38,8	38,8	38,8	45,6	52,4	52,4	52,4
Heat exchanger			Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes
Refrigerant control			Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve
AIR CONDITIONING										
Type and quantity			Axial fan x 4	Axial fan x 4	Axial fan x 4	Axial fan x 4	Axial fan x 4	Axial fan x 4	Axial fan x 4	Axial fan x 4
Motor		W	386 x 4	386 x 4	386 x 4	386 x 4	386 x 4	386 x 4	386 x 4	386 x 4
Airflow and head		m³/min (Pa)	260x270 (0, max 50)	270x2 (0, max 50)	270x2 (0, max 50)	270x2 (0, max 50)	270x2 (0, max 50)	270x2 (0, max 50)	270x2 (0, max 50)	270x2 (0, max 50)
Max. noise level		dB(A)	63,5/64	63/63,5	63/65	63,5/65,5	65/66	66/66	66,5	66,5
PIPE SPECIFICATIONS										
Pipe diameter	Liquid line	mm (in)	ø12,70 (1/2")	ø12,70 (1/2")	ø12,70 (1/2")	ø12,70 (1/2")	ø12,70 (1/2")	ø12,70 (1/2")	ø12,70 (1/2")	ø12,70 (1/2")
	Discharge gas line	mm (in)	-	-	-	-	-	-	-	-
	Suction gas line	mm (in)	ø28,58 (9/8")	ø28,58 (9/8")	ø28,58 (9/8")	ø28,58 (9/8")	ø28,58 (9/8")	ø28,58 (9/8")	ø28,58 (9/8")	ø28,58 (9/8")
Connection method			Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded
Capacity control		%	4~110	4~109	4~111	4~112	4~112	4~109	4~108	4~107
N. of connectable I.U.			48	48	48	48	48	48	48	48



Notes

- (1) Fix the unit with the anchor bolts.
- (2) Leave at least 2m free space above the unit.
- (3) The decal with the installation data shall be positioned under the front panel (right side).
- (4) Openings for electric wiring and refrigerant piping are knock out (open with a cutter).
- (5) For the piping inlet, use the Ø88 hole or the Ø100 hole depending on the installation requirements.
- (6) Use the fixing holes (M10x4) marked with "L" and "J" in case of replacement of an outer unit of the previous series.
- (7) Connect the refrigeration oil equalising pipe ("K") in case of combined use of the outer unit.

21

KX4

Refrigerant piping

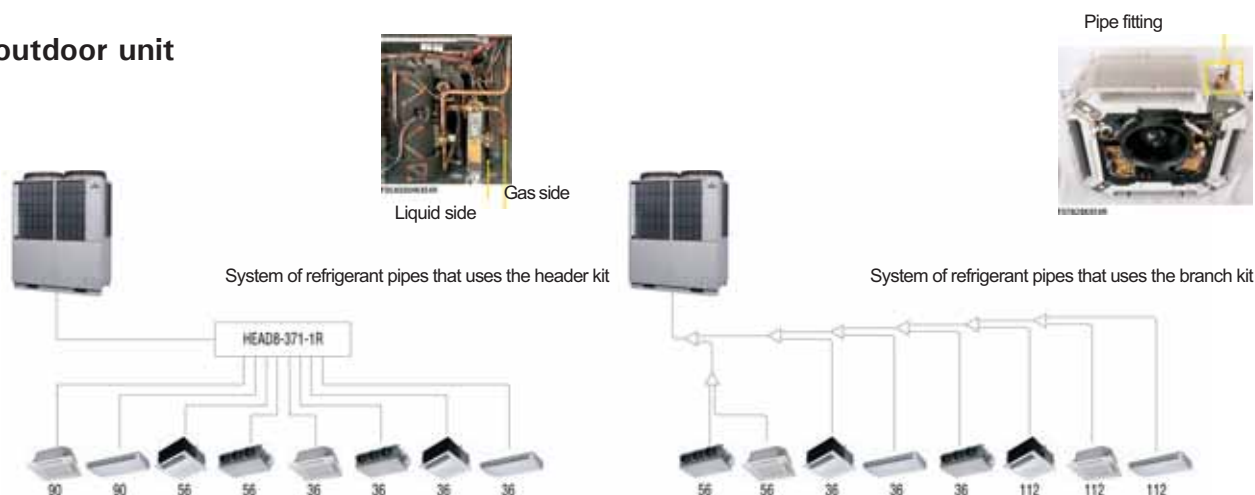
The KX4 system is manufactured in accordance with the highest standards of quality and reliability and therefore it is essential that the methods of installation and materials used have the same qualitative characteristics, to guarantee long-term trouble-free operation.

We recommend using copper refrigerant pipes, which must be chosen allowing for the greater operating pressure of the R410A refrigerant gas.

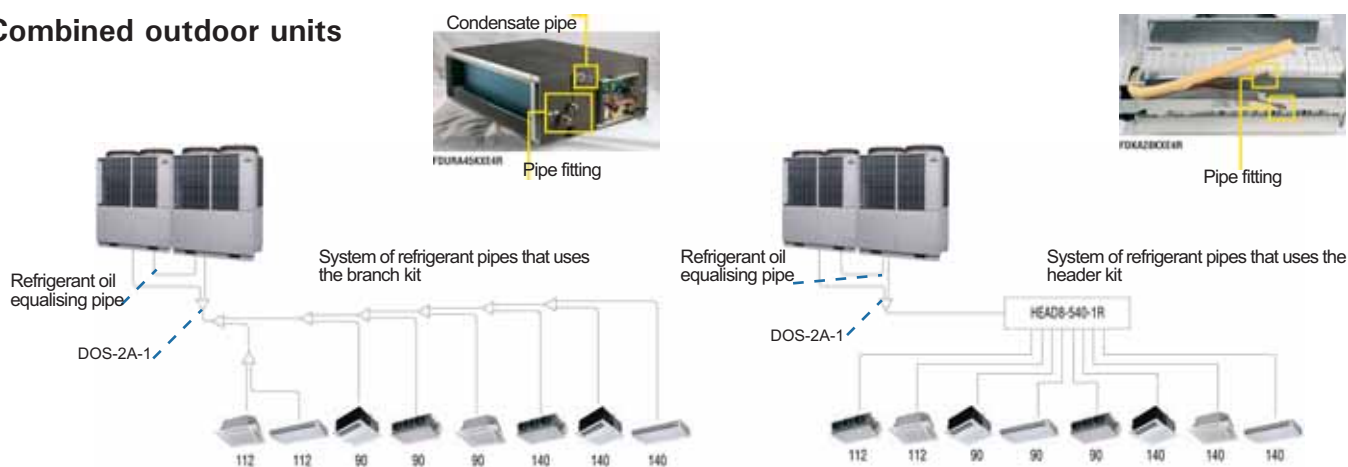
The materials used must respect European standard EN12735 and the RoHS directive, which envisages the prohibition (in other words limiting the use) of lead, mercury, cadmium, hexavalent chrome and some fire retardants in electric and electronic equipment (polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs) to very low values. The connections to the indoor units and those between the outdoor units must be made using the original Mitsubishi Heavy Industries branch kits and header kits.

The additional R410A refrigerant gas must be charged using electronic scales. The additional quantity of gas must be calculated in accordance with the data supplied by the manufacturer, established on the basis of the length and diameter of each section of the refrigerant pipes in the system.

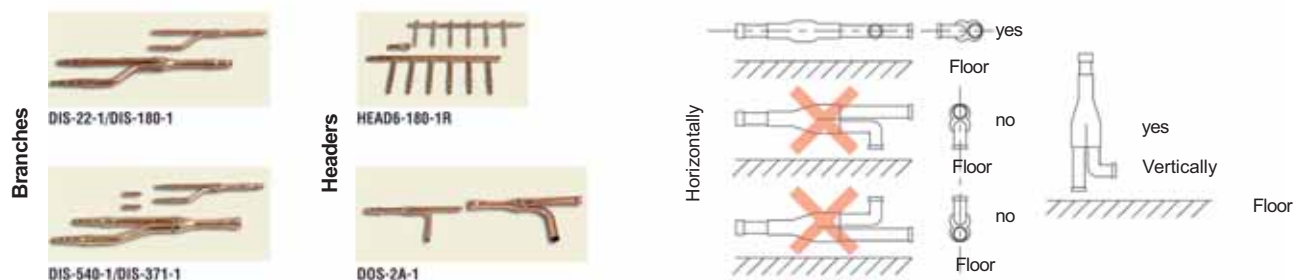
Single outdoor unit



Combined outdoor units



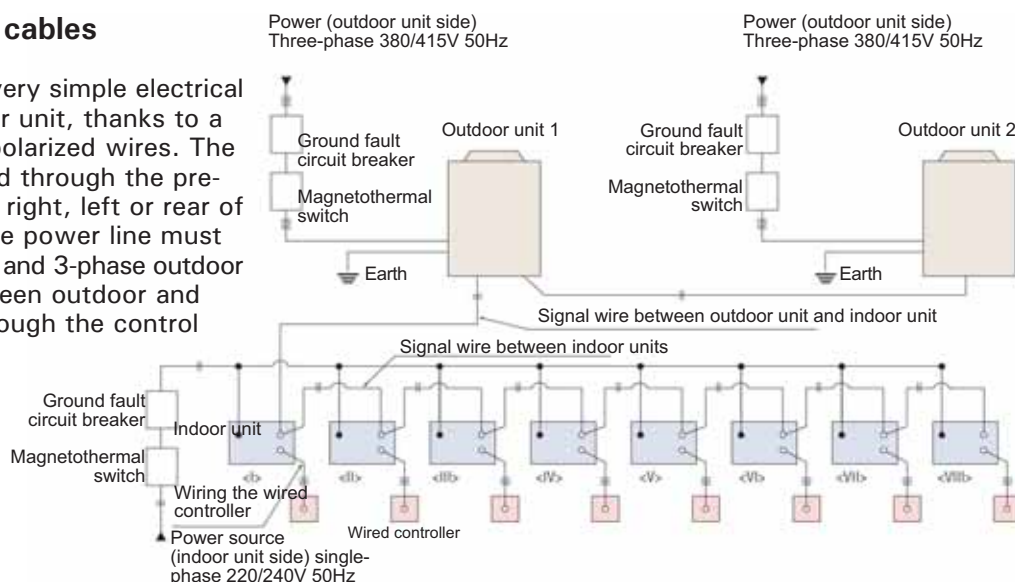
Outdoor units (HP)		8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	48
Liquid side	Main piping =<90 m	3/8"	3/8"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	3/4"	3/4"	3/4"	3/4"	3/4"
Gas side		3/4"	7/8"	1"	1"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"
Liquid side	Main piping =<90 m	1/2"	1/2"	1/2"	1/2"	1/2"	5/8"	5/8"	5/8"	5/8"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	7/8"	7/8"	7/8"	7/8"	7/8"
Gas side		7/8"	7/8"	7/8"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"	1 3/8"



Electrical connections

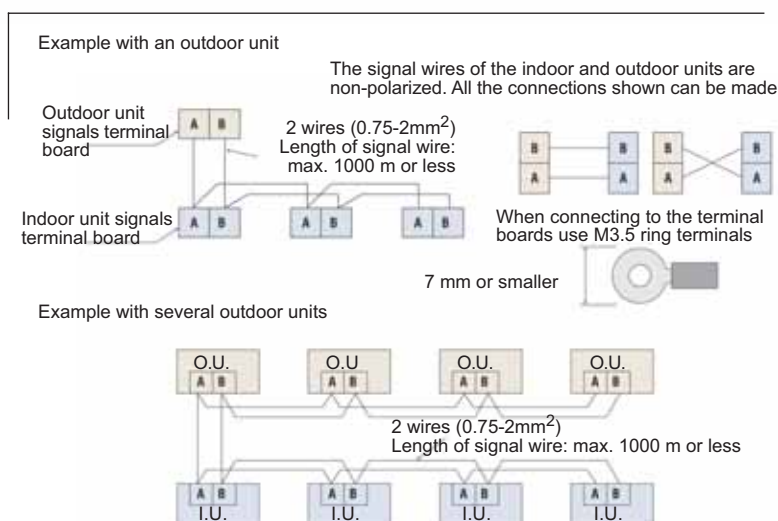
Connecting the power cables

The new KX4 system has very simple electrical connections with the indoor unit, thanks to a control circuit with 2 non-polarized wires. The power wiring can be passed through the pre-punched holes in the front, right, left or rear of the outdoor unit. A separate power line must be installed for outdoor units and 3-phase outdoor units. The interaction between outdoor and indoor unit is also done through the control device.



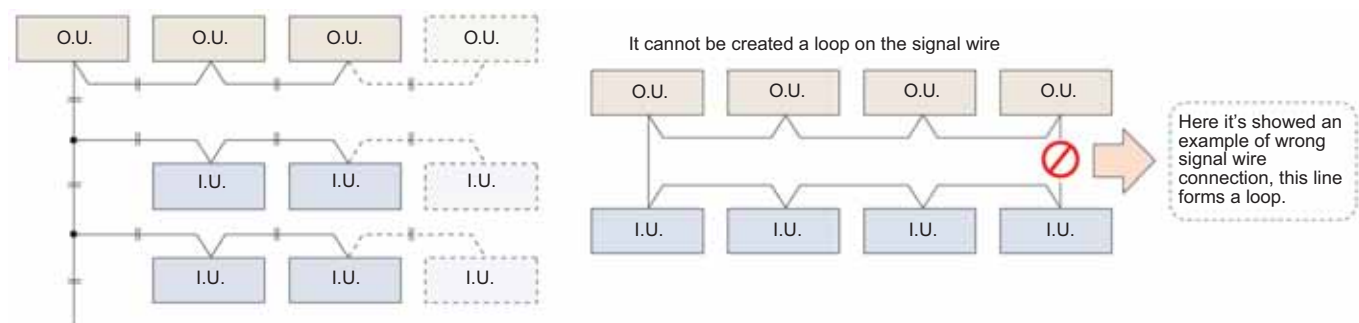
Connecting the signal wire

The signal wire is 5V DC, so it must never be connected to a 220/240V power line as the electronic boards in all of the units connected to the signal wire would be irreparably damaged. The signal line has 2 non-polarized wires, therefore it is not strictly necessary to respect the same order (A, B) of the wires and contacts on the terminal board on the different outdoor and indoor units. Use shielded cables for the signal wire. Connect the shield to a metallic part of the unit near the terminal board A or B. Avoid, as far as possible, installing the cable of the signal wire with the power cable.



(a) A maximum of 48 indoor units can be connected to a signal wire and it is possible to create groups of indoor units connected to the same outdoor unit or distinct outdoor units, as long as these are connected to the same signal wire.

(b) The signal wire can also be connected as described below.



Specifications relevant to the connection of the wired controller

- The standard specifications for wiring the wired controller are 0.3 mm² x 3 wires. The maximum length allowed is 600 m. If the length is over 100 m, refer to the table.
- If the wiring of the wired controller runs parallel with a power line, or is exposed to electromagnetic disturbance (high frequency equipment), use shielded wires, connecting just one end of the shield to earth.

Length (m)	Type of wires
100-200	0.5 mm ² x 3 wires
up to 300	0.75 mm ² x 3 wires
up to 400	1.25 mm ² x 3 wires
up to 600	2.0 mm ² x 3 wires

KXR4

KXR4 modular heat recovery systems

The KXR4 heat recovery system offers simultaneous cooling and heating modes for the single indoor unit to meet the needs and characteristics of the environments to condition.

Thanks to highly sophisticated control systems it is possible to condition several indoor environments, with different cooling or heating requirements, such as in the case of buildings exposed on 4 sides, where the heat gain/loss varies notably in the different zones.

The range starts with a 8 HP (22.4 kW) model, and goes up to a model with the maximum capacity for a single outdoor unit available on the market (24 HP), with a cooling capacity of 68 kW. The outdoor units can also be combined proving up to 48 HP/136 kW on a single system.

Branch piping set (opt.)	Total capacity of the I.U. upstream of the PFD	
DIS-22-1-R	< 18 kW	
DIS-180-1-R	> 18 kW - < 37,1 kW	
DIS-371-1-R	> 37,1 kW - < 54 kW	
DIS-540-1-R	> 54 kW	
Branch piping set (opt.)	Total capacity of the I.U. downstream of PFD	
DIS-22-1	< 18 kW	
DIS-180-1	> 18 kW - < 37,1 kW	
DIS-371-1	> 37,1 kW - < 54 kW	
DIS-540-1	> 54 kW	
Flow branch controller		N. of connectable units
PFD112-ER		1-5
PFD180-ER		1-8
PFD280-ER		1-10
PFD112X4-ER		max. 16
Outdoor unit branch piping set*		
DOS-2A-1-R	for 2 units (from 735 to 1360)	

* To use only with 2 combined outdoor units and not for a stand-alone installation.

Heat recovery unit								
	8HP		10HP		12HP		14HP	
	FDCA224HKXRE4BR*		FDCA280HKXRE4BR*		FDCA335HKXRE4BR* FDCA335HKXRE4BRK		FDCA400HKXRE4BR	
								
	16HP		18HP		20HP		22HP	
	FDCA450HKXRE4BR		FDCA504HKXRE4BR		FDCA560HKXRE4BR		FDCA615HKXRE4BR	
Combinations of units with heat recovery								
	24HP							
	FDCA680HKXRE4BR							
								
	26HP		28HP		30HP			
	FDCA735HKXRE4BR (FDCA335HKXRE4BRK+FDCA400HKXRE4BR)		FDCA800HKXRE4BR (FDCA400HKXRE4BR+FDCA400HKXRE4BR)		FDCA850HKXRE4BR (FDCA400HKXRE4BR+FDCA450HKXRE4BR)			
								
	32HP		34HP		36HP			
	FDCA900HKXRE4BR (FDCA450HKXRE4BR+FDCA450HKXRE4BR)		FDCA960HKXRE4BR (FDCA450HKXRE4BR+FDCA504HKXRE4BR)		FDCA1010HKXRE4BR (FDCA504HKXRE4BR+FDCA504HKXRE4BR)			
								
	38HP		40HP		42HP			
	FDCA1065HKXRE4BR (FDCA504HKXRE4BR+FDCA560HKXRE4BR)		FDCA1130HKXRE4BR (FDCA560HKXRE4BR+FDCA560HKXRE4BR)		FDCA1180HKXRE4BR (FDCA560HKXRE4BR+FDCA615HKXRE4BR)			
								
	44HP		46HP		48HP			
	FDCA1235HKXRE4BR (FDCA615HKXRE4BR+FDCA615HKXRE4BR)		FDCA1300HKXRE4BR (FDCA615HKXRE4BR+FDCA680HKXRE4BR)		FDCA1360HKXRE4BR (FDCA680HKXRE4BR+FDCA680HKXRE4BR)			

* These models of outdoor units are not modular, therefore they can only be used in stand-alone mode. For the 26HP combination (14HP + 12HP), the outdoor unit FDCA335HKXRE4R-K must be used.

Number of indoor units available for combinations

Up to 48 indoor units, of 12 different types and capacities, for a total of roughly 61 models can be connected to the higher capacity outdoor unit.

HP equivalent	8	10	12	14	16	18	20	22	24	26	28
Model	FDCA224HKXRE4BR	FDCA280HKXRE4BR	FDCA335HKXRE4BR FDCA335HKXRE4BRK	FDCA400HKXRE4BR	FDCA450HKXRE4BR	FDCA504HKXRE4BR	FDCA560HKXRE4BR	FDCA615HKXRE4BR	FDCA680HKXRE4BR	FDCA735HKXRE4BR	FDCA800HKXRE4BR
N. of connectable units	1-13	1-16	1-20	1-23	1-26	1-29	1-33	2-36	2-40	2-43	2-47

HP equivalent	30	32	34	36	38	40	42	44	46	48
Model	FDCA850HKXRE4BR	FDCA900HKXRE4BR	FDCA960HKXRE4BR	FDCA1010HKXRE4BR	FDCA1065HKXRE4BR	FDCA1130HKXRE4BR	FDCA1180HKXRE4BR	FDCA1235HKXRE4BR	FDCA1300HKXRE4BR	FDCA1360HKXRE4BR
N. of connectable units	2-48	2-48	2-48	2-48	2-48	3-48	3-48	3-48	3-48	3-48

The refrigerant connections of the KXR4 heat recovery system follow one route, with two pipes connected to the PFD flow divider and the third connected directly to each indoor unit off the main refrigerant line. This reduces the number of welds to execute in situ and, therefore also the time required for installation.

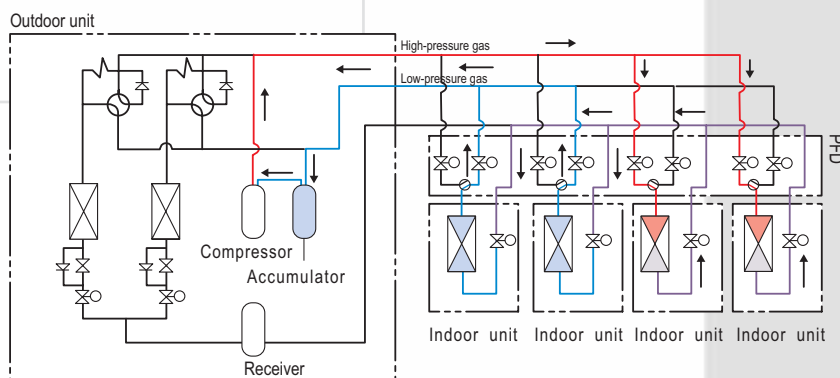
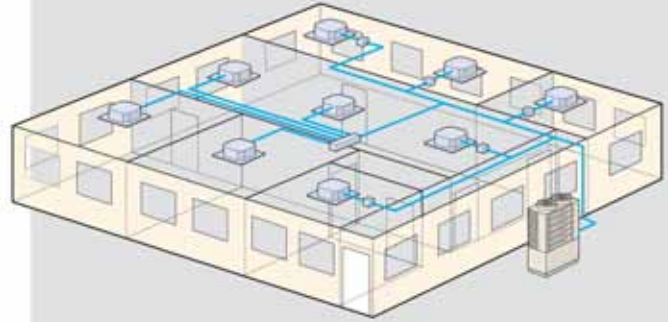
The PFD flow divider is available for single connections or 4-way connections, where each unit connected operates independently in the cooling or heating mode.

The main advantages of the KXR4 system:

- free choice between cooling and heating mode for each indoor unit;
- high efficiency and excellent energy savings;
- use of the same indoor unit as the KX4 with flow divider;
- power rating of the outdoor units from 8HP to 48HP;
- up to 48 indoor units can be connected to the same refrigerant system

The advantages of simultaneous heating/cooling:

- in buildings with a low thermal inertia, especially in those built using materials such as glass and metal, the factor of exposure to direct solar radiation often makes a great difference to the air conditioning requirements (especially in "spring and autumn");
- in buildings with variable environment, where there are crowded areas (meeting rooms, restaurants, etc.) or where cooling is also required in winter (Data Processing Centres, servers etc.), a complete freedom of choice is required for the operating mode.



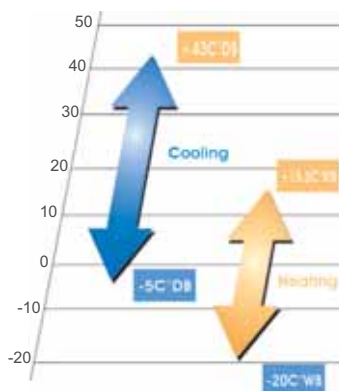
System characterised by simultaneous cooling and heating functions.

KXR4 modular heat recovery systems

8-16HP (22.4-45.0kW)

FDCA224HKXRE4BR 22.4kW
 FDCA280HKXRE4BR 28.0kW
 FDCA335HKXRE4BR 33.5kW
 FDCA335HKXRE4BRK 33.5kW
 FDCA400HKXRE4BR 40.0kW
 FDCA450HKXRE4BR 45.0kW

- The KXR4 VRF heat recovery system with 3 inter connecting pipes guarantees excellent performance for any type of building, with simultaneous cooling and heating functions for each single indoor unit.
- The efficiency is maximized by the use of the DC Inverter compressor and the distribution of the surplus heat generated during cooling to the areas that require heating, and vice versa.
- Maximum efficiency, with COP values from 3.68 to 4,24 and EER from 3.28 to 3.80.
- Connects from 50% to 130% of the capacity of the indoor units.
- The length of the piping is the longest available on the market: up to 510 m total length, and with a max. pipe length of 160 m.



Heating function with external temperatures down to -20°C (wet bulb)

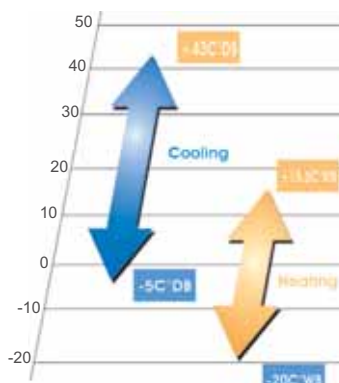
MODEL		FDCA	224 HKXRE4BR	280 HKXRE4BR	335 HKXRE4BR	400 HKXRE4BR	450 HKXRE4BR
Power source		HP	8	10	12	14	16
Cooling capacity		kW	22,40	28,00	33,50	40,00	45,00
Heating capacity		kW	25,00	31,50	37,50	45,00	50,00
ELECTRICAL DATA							
Power		Ph-V-Hz	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ
Power absorption - cooling		kW	5,90	8,54	10,17	11,61	13,57
Power absorption - heating		kW	5,90	8,55	9,55	12,18	13,55
EER			3,80	3,28	3,29	3,45	3,32
COP			4,24	3,68	3,93	3,69	3,69
Current - cooling		A	9,1~8,3	13,6~12,4	16,5~15,1	19,0~17,4	21,6~19,8
Current - heating		A	9,2~8,4	13,5~12,4	15,5~14,2	20,3~18,6	22,4~20,5
DIMENSIONS							
External dimensions	height x width x depth	mm	1690x1350x720	1690x1350x720	1690x1350x720	1690x1350x720	1690x1350x720
Net weight		Kg	250	250	250	315	315
REFRIGERATION CIRCUIT							
Refrigerant			R410A	R410A	R410A	R410A	R410A
Refrigerant pre-charge		Kg	14,2	14,2	14,2	17,0	17,0
Heat exchanger			Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes
Refrigerant control			Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve
AIR CONDITIONING							
Type and quantity			Axial fan x 2	Axial fan x 2	Axial fan x 2	Axial fan x 2	Axial fan x 2
Motor		W	126 x 2	126 x 2	386 x 2	386 x 2	386 x 2
Airflow and head	Cool./Heat.	m ³ /min (Pa)	220/180(0, max 50)	220/180(0, max 50)	280/260(0, max 50)	250/220(0, max 50)	260/240(0, max 50)
Max. noise level		dB(A)	57/57	57/59	60,5/62,5	59,5/60	62,5/62,5
PIPE SPECIFICATIONS							
Pipe diameter	Liquid line	mm (in)	ø9.52 (3/8")	ø9.52 (3/8")	ø12.70 (1/2")	ø12.70 (1/2")	ø12.70 (1/2")
	Discharge gas line	mm (in)	ø15.88 (5/8")	ø19.05 (3/4")	ø19.05 (3/4")	ø22.22 (7/8")	ø22.22 (7/8")
	Suction gas line	mm (in)	ø19.05 (3/4")	ø22.22 (7/8")	ø22.22 (7/8")	ø28.58 (9/8")	ø28.58 (9/8")
Connection method			Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded
Capacity control		%	24~114	19~109	18~103	14~113	13~109
N. of connectable I.U.			13	16	20	23	26

KXR4 modular heat recovery systems

18-24HP (50.4-68.0kW)

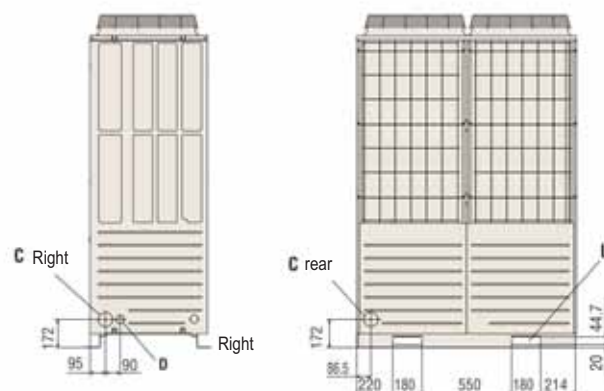
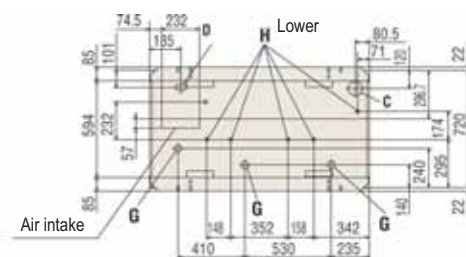
FDCA504HKXRE4BR 50.4kW
FDCA560HKXRE4BR 56.0kW
FDCA615HKXRE4BR 61.5kW
FDCA680HKXRE4BR 68.0kW

- The KXR4 VRF heat recovery system with 3 inter-connecting pipes guarantees excellent performance for any type of building, with simultaneous cooling and heating functions for each single indoor unit.
- The efficiency is maximized by the use of the DC Inverter compressor and the distribution of the surplus heat generated during cooling to the areas that require heating, and vice versa.
- Maximum efficiency, with COP values from 3.56 to 3.71 and EER from 2.62 to 3.21.
- Connects from 50% to 130% of the capacity of the indoor units.
- The length of the piping is the longest available on the market: up to 510 m total length, and with a max. pipe length of 160 m.



Heating function with external temperatures down to -20°C (wet bulb)

MODEL		FDCA	504 HKXRE4BR	560 HKXRE4BR	615 HKXRE4BR	680 HKXRE4BR
Power source		HP	18	20	22	24
Cooling capacity		kW	50,40	56,00	61,50	68,00
Heating capacity		kW	56,50	63,00	69,00	73,00
ELECTRICAL DATA						
Power		Ph-V-Hz	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ
Power absorption - cooling		kW	15,69	18,76	21,47	25,99
Power absorption - heating		kW	15,62	17,69	19,11	19,69
EER			3,21	2,99	2,86	2,62
COP			3,62	3,56	3,61	3,71
Current - cooling		A	24,6~22,5	29,7~27,2	34,7~31,8	44,9~41,1
Current - heating		A	26,1~23,9	29,5~27,0	31,6~28,9	34,0~31,1
DIMENSIONS						
External dimensions	height x width x depth	mm	2048x1350x720	2048x1350x720	2048x1350x720	2048x1350x720
Net weight		Kg	345	345	365	365
REFRIGERATION CIRCUIT						
Refrigerant			R410A	R410A	R410A	R410A
Refrigerant pre-charge		Kg	19,4	19,4	26,2	26,2
Heat exchanger			Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes
Refrigerant control			Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve
AIR CONDITIONING						
Type and quantity			Axial fan x 2	Axial fan x 2	Axial fan x 2	Axial fan x 2
Motor		W	386 x 2	386 x 2	386 x 2	386 x 2
Airflow and head	Cool./Heat.	m³/min (Pa)	270/250 (0, max 50)	270/250 (0, max 50)	270/250 (0, max 50)	270/250 (0, max 50)
Max. noise level		dB(A)	61/61,5	62/62,5	64/64	64,5/64,5
PIPE SPECIFICATIONS						
Pipe diameter	Liquid line	mm (in)	ø12.70 (1/2")	ø12.70 (1/2")	ø12.70 (1/2")	ø12.70 (1/2")
	Discharge gas line	mm (in)	ø22.22 (7/8")	ø22.22 (7/8")	ø25.40 (1")	ø25.40 (1")
	Suction gas line	mm (in)	ø28.58 (9/8")	ø28.58 (9/8")	ø28.58 (9/8")	ø28.58 (9/8")
Connection method			Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded
Capacity control		%	11~107	9~107	8~110	8~100
N. of connectable I.U.			29	33	36	40



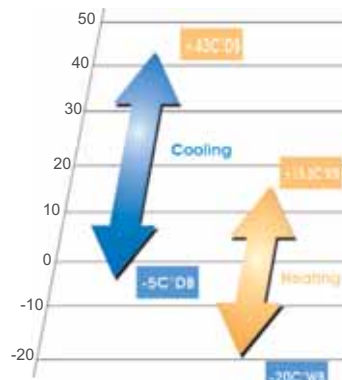
Dimensions	Installation example	
	1	2
L1	500	open
L2	10	10
L3	100	100
L4	10	open
H1	1500	-
H2	not limited	not limited
H3	1000	not limited
H4	not limited	-

KXR4 modular heat recovery systems

26-32HP (73.5-90.0kW)

FDCA735HKXRE4BR (FDCA335R + FDCA400R) 73.5kW
 FDCA800HKXRE4BR (FDCA400R + FDCA400R) 80.0kW
 FDCA850HKXRE4BR (FDCA400R + FDCA450R) 85.0kW
 FDCA900HKXRE4BR (FDCA450R + FDCA450R) 90.0kW

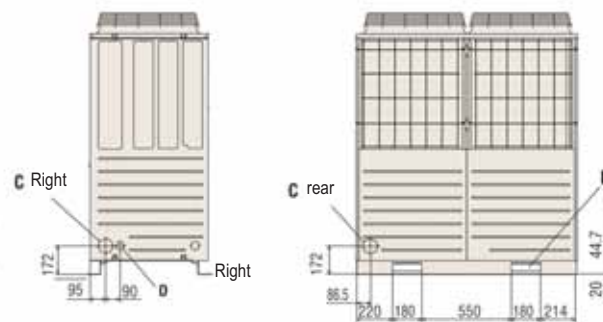
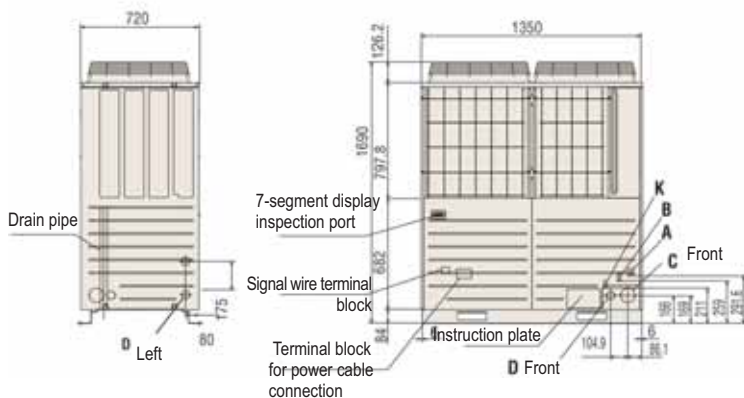
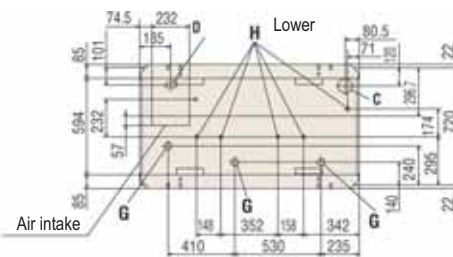
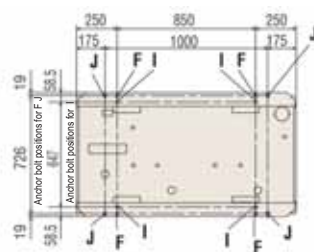
- The KXR4 VRF heat recovery system with 3 inter connecting pipes guarantees excellent performance for any type of building, with simultaneous cooling and heating functions for each single indoor unit.
- The efficiency is maximized by the use of the DC Inverter compressor and the distribution of the surplus heat generated during cooling to the areas that require heating, and vice versa.
- Maximum efficiency, with COP values from 3.69 to 3.83 and EER from 3.32 to 3.49.
- Connects from 50% to 130% of the capacity of the indoor units.
- The length of the piping is the longest available on the market: up to 510 m total length, and with a max. pipe length of 160 m.
- The modular units can be connected up to a maximum distance of 10 m.



Heating function with external temperatures down to -20°C (wet bulb)

MODEL		FDCA	735 HKXRE4BR	800 HKXRE4BR	850 HKXRE4BR	900 HKXRE4BR
Power source		HP	26	28	30	32
Cooling capacity		kW	73,50	80,00	85,00	90,00
Heating capacity		kW	82,50	90,00	95,00	100,00
ELECTRICAL DATA						
Power		Ph-V-Hz	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ
Power absorption - cooling		kW	21,08	23,22	25,18	27,14
Power absorption - heating		kW	21,55	24,36	25,73	27,10
EER			3,49	3,45	3,38	3,32
COP			3,83	3,69	3,69	3,69
Current - cooling		A	34,4~31,5	38,0~34,8	40,6~37,3	43,2~39,6
Current - heating		A	35,8~32,8	40,6~37,2	42,7~39,1	44,8~41,0
DIMENSIONS						
External dimensions	height x width x depth	mm	(1690x1350x720) x 2	(1690x1350x720) x 2	(1690x1350x720) x 2	(1690x1350x720) x 2
Net weight		Kg	250+315 x 2	315 x 2	315 x 2	315 x 2
REFRIGERATION CIRCUIT						
Refrigerant			R410A	R410A	R410A	R410A
Refrigerant pre-charge		Kg	31,2	34	34	34
Heat exchanger			Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes
Refrigerant control			Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve
AIR CONDITIONING						
Type and quantity			Axial fan x 4	Axial fan x 4	Axial fan x 4	Axial fan x 4
Motor		W	386 x 4	386 x 4	386 x 4	386 x 4
Airflow and head		m³/min (Pa)	220+250 (0, max 50)	250 x 2 (0, max 50)	250+260 (0, max 50)	260 x 2 (0, max 50)
Max. noise level		dB(A)	61,5/62	62,5/63	64,5/64,5	65,5/65,5
PIPE SPECIFICATIONS						
Pipe diameter	Liquid line	mm (in)	ø15.88 (5/8")	ø15.88 (5/8")	ø15.88 (5/8")	ø15.88 (5/8")
	Discharge gas line	mm (in)	ø28.58 (9/8")	ø28.58 (9/8")	ø28.58 (9/8")	ø28.58 (9/8")
	Suction gas line	mm (in)	ø34.92 (1 3/8")	ø34.92 (1 3/8")	ø34.92 (1 3/8")	ø34.92 (1 3/8")
Connection method			Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded
Capacity control		%	8~123	4~114	4~112	4~112
N. of connectable I.U.			43	47	48	48

View from above of the unit after connection including refrigeration circuit connections



Rif.	Item	
A	Gas side piping connection	For the refrigerant piping, please refer to the O.U. specifications
B	Liquid side piping connection	
C	Outlet for refrigerant piping	Ø100
D	Opening for power cables	Ø50
F	Hole for anchor bolts	M10, 4 holes
G	Drain pipe connection	Ø45, 3 holes
H	Drain hole	Ø20, 6 holes
K	Oil equalising pipe connection	Ø3/8" (flare)
L	Opening for handling	180x44.7

Notes

- (1) Fix the unit with the anchor bolts.
- (2) Leave at least 2m free space above the unit.
- (3) The decal with the installation data shall be positioned under the front panel (right side).
- (4) Openings for electric wiring and refrigerant piping are knock out (open with a cutter).
- (5) For the piping inlet, use the Ø88 hole or the Ø100 hole depending on the installation requirements.
- (6) Use the fixing holes (M10x4) marked with "L" and "J" in case of replacement of an outer unit of the previous series.
- (7) Connect the refrigeration oil equalising pipe ("K") in case of combined use of the outer unit.

All of the measurements shown are in mm.

Calculation of the noise levels: 1 m from front part of the unit; 1 m in height.

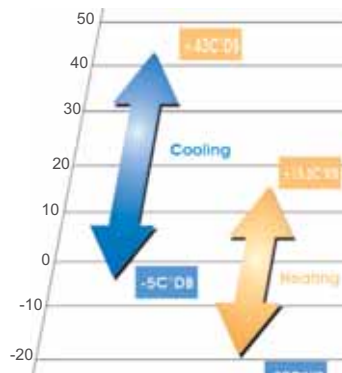
KXR4 modular heat recovery systems

34-48HP (96.0-136.0kW)

FDCA960HKXRE4BR (FDCA450R+FDCA504R) 96.0kW
 FDCA1010HKXRE4BR (FDCA504R+FDCA504R) 101.0kW
 FDCA1065HKXRE4BR (FDCA504R+FDCA560R) 106.5kW
 FDCA1130HKXRE4BR (FDCA560R+FDCA560R) 113.0kW
 FDCA1180HKXRE4BR (FDCA560R+FDCA615R) 118.0kW
 FDCA1235HKXRE4BR (FDCA615R+FDCA615R) 123.5kW
 FDCA1300HKXRE4BR (FDCA615R+FDCA680R) 130.0kW
 FDCA1360HKXRE4BR (FDCA680R+FDCA680R) 136.0kW

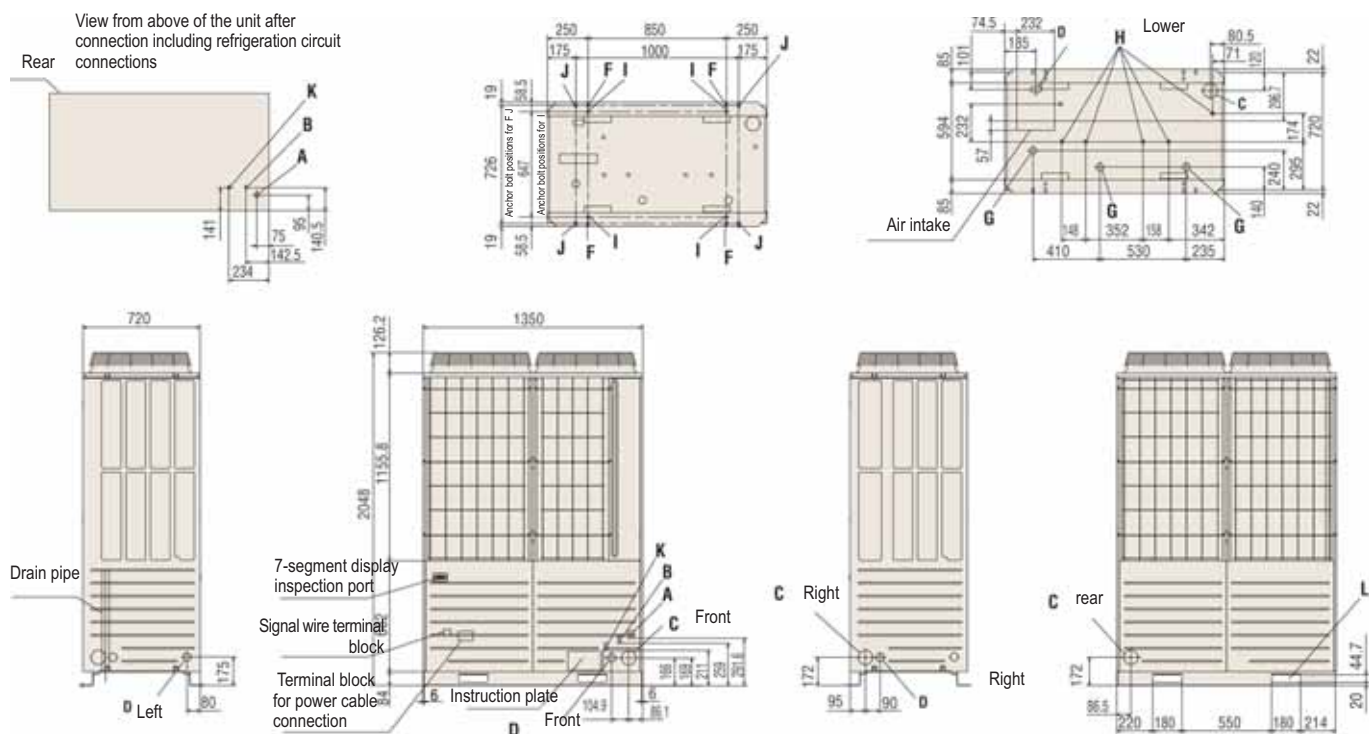


- The KXR4 VRF heat recovery system with 3 inter-connecting pipes guarantees excellent performance for any type of building, with simultaneous cooling and heating functions for each single indoor unit.
- Maximum efficiency, with COP values from 3.59 to 3.71 and EER from 2.62 to 3.28.
- Connects from 50% to 130% of the capacity of the indoor units.
- The length of the piping is the longest available on the market: up to 510 m total length, and with a max. pipe length of 160 m.
- The modular units can be connected up to a maximum distance of 10 m.



Heating function with external temperatures down to -20°C (wet bulb)

MODEL		FDCA	960 HKXRE4BR	1010 HKXRE4BR	1065 HKXRE4BR	1130 HKXRE4BR	1180 HKXRE4BR	1235 HKXRE4BR	1300 HKXRE4BR	1360 HKXRE4BR
Power source		HP	34	36	38	40	42	44	46	48
Cooling capacity		kW	96,00	101,00	106,50	113,00	118,00	123,5	130,00	136,00
Heating capacity		kW	108,00	113,00	119,50	127,00	132,00	138,00	142,00	146,00
ELECTRICAL DATA										
Power		Ph-V-Hz	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ
Power absorption - cooling		kW	29,26	31,88	34,45	37,52	40,23	42,94	47,46	51,98
Power absorption - heating		kW	29,17	31,24	33,31	35,38	36,80	38,22	38,80	39,38
EER			3,28	3,17	3,09	3,01	2,93	2,88	2,74	2,62
COP			3,70	3,62	3,59	3,59	3,59	3,61	3,66	3,71
Current - cooling		A	46,2~42,3	49,2~45,0	54,3~49,7	59,4~54,4	64,4~59,0	69,4~63,6	79,6~72,9	89,8~82,2
Current - heating		A	48,5~44,4	52,2~47,8	55,6~50,9	59,0~54,0	61,1~55,9	63,2~57,8	65,6~60,0	68,0~62,2
DIMENSIONS										
External dimensions	height x width x depth	mm	(1690x1350x720) x1 (2048x1350x720) x1	(1690x1350x720) x2 (2048x1350x720) x2	(1690x1350x720) x2 (2048x1350x720) x2	(1690x1350x720) x2 (2048x1350x720) x2	(1690x1350x720) x2 (2048x1350x720) x2	(1690x1350x720) x2 (2048x1350x720) x2	(1690x1350x720) x2 (2048x1350x720) x2	(1690x1350x720) x2 (2048x1350x720) x2
Net weight		Kg	345 + 315	345 x 2	345 x 2	345 x 2	365 + 345	365 x 2	365 x 2	365 x 2
REFRIGERATION CIRCUIT										
Refrigerant			R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant pre-charge		Kg	36,4	38,8	38,8	38,8	45,6	52,4	52,4	52,4
Heat exchanger			Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes
Refrigerant control			Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve	Electronic expansion valve
AIR CONDITIONING										
Type and quantity			Axial fan x 4	Axial fan x 4	Axial fan x 4	Axial fan x 4	Axial fan x 4	Axial fan x 4	Axial fan x 4	Axial fan x 4
Motor		W	386 x 4	386 x 4	386 x 4	386 x 4	386 x 4	386 x 4	386 x 4	386 x 4
Airflow and head		m³/min (Pa)	260x270 (0, max 50)	270x2 (0, max 50)	270x2 (0, max 50)	270x2 (0, max 50)	270x2 (0, max 50)	270x2 (0, max 50)	270x2 (0, max 50)	270x2 (0, max 50)
Max. noise level		dB(A)	65/65	64/64,5	64,5/65	65/65,5	66/66,5	67/67	67,5/67,5	67,5/67,5
PIPE SPECIFICATIONS										
Pipe diameter	Liquid line	mm (in)	ø15.88 (5/8")	ø15.88 (5/8")	ø19.05 (3/4")	ø19.05 (3/4")	ø19.05 (3/4")	ø19.05 (3/4")	ø19.05 (3/4")	ø19.05 (3/4")
	Discharge gas line	mm (in)	ø28.58 (9/8")	ø28.58 (9/8")	ø28.58 (9/8")	ø28.58 (9/8")	ø28.58 (9/8")	ø28.58 (9/8")	ø28.58 (9/8")	ø28.58 (9/8")
	Suction gas line	mm (in)	ø34.92 (1 3/8")	ø34.92 (1 3/8")	ø34.92 (1 3/8")	ø34.92 (1 3/8")	ø34.92 (1 3/8")	ø34.92 (1 3/8")	ø34.92 (1 3/8")	ø34.92 (1 3/8")
Connection method			Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded	Liquid side: flared fitting Gas side: welded
Capacity control		%	4~110	4~109	4~111	4~112	4~112	4~109	4~108	4~107
N. of connectable I.U.			48	48	48	48	48	48	48	48



Rif.	Item	
A	Gas side piping connection	For the refrigerant piping, please refer to the O.U. specifications
B	Liquid side piping connection	
C	Outlet for refrigerant piping	Ø100
D	Opening for power cables	Ø50
F	Hole for anchor bolts	M10, 4 holes
G	Drain pipe connection	Ø45.3, 3 holes
H	Drain hole	Ø20.5, 3 holes
K	Oil equalising pipe connection	Ø9.52 (flare)
L	Opening for handling	180x44.7

Notes

- (1) Fix the unit with the anchor bolts.
- (2) Leave at least 2m free space above the unit.
- (3) The decal with the installation data shall be positioned under the front panel (right side).
- (4) Openings for electric wiring and refrigerant piping are knock out (open with a cutter).
- (5) For the piping inlet, use the Ø88 hole or the Ø100 hole depending on the installation requirements.
- (6) Use the fixing holes (M10x4) marked with "L" and "J" in case of replacement of an outer unit of the previous series.
- (7) Connect the refrigeration oil equalising pipe ("K") in case of combined use of the outer unit.

All of the measurements shown are in mm.
Calculation of the noise levels: 1 m from front part of the unit; 1 m in height.

KXR4

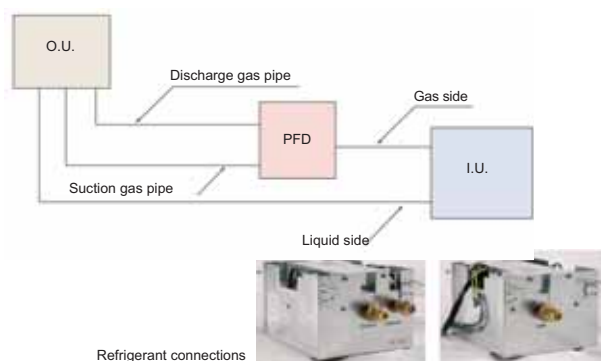
Flow branch controller

PFD112-ER 11.2kW
PFD180-ER 18.0kW
PFD280-ER 28.0kW
PFD112X4-ER 37.1kW

The PFD lets the indoor units operate simultaneously in the cooling and heating mode. Each unit, or group of units, connected to the PFD, can operate irrespective of the thermal requirements of the other areas of the building. The new PFD design includes an additional solenoid valve and capillary that reduces the pressure and eliminates the noise produced by the coolant gas during the variation of the operating mode (cooling-heating-cooling).

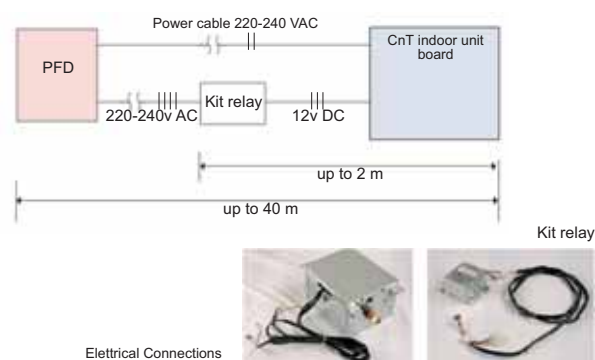
Easy to install

The new PFD design envisages the direct connection of the indoor unit liquid pipe to the liquid line coming from the outdoor unit, bypassing the PFD. This reduces the length of the connection pipes, the flanging required and, consequently, the times and costs of installation.



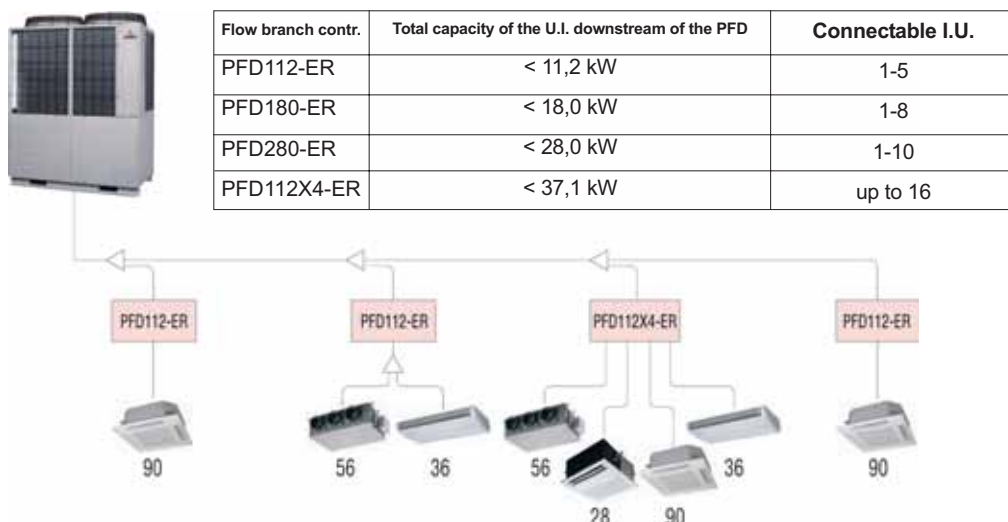
The PFD is connected to the indoor unit by a 3-core signal wire and a relay kit (supplied) to be located within a distance of 2 m (don't extend the cable supplied).

The indoor unit however can be installed up to a distance of 40 m, extending the power cable. The electrical power to the PFD can be supplied directly by the indoor unit, or other sources.



The groups of indoor units (up to a total capacity of 37.1 kW) can be connected to a single flow branch controller through branches, so the units of that group will operate in the same mode (cooling or heating). Today Mitsubishi Heavy Industries can offer the new 4-way PDF controller PFD112X4 which can connect up to 4 indoor units or 4 groups with a maximum of 4 indoor units with individual control and simultaneous cooling or heating.

PFD112X4-ER



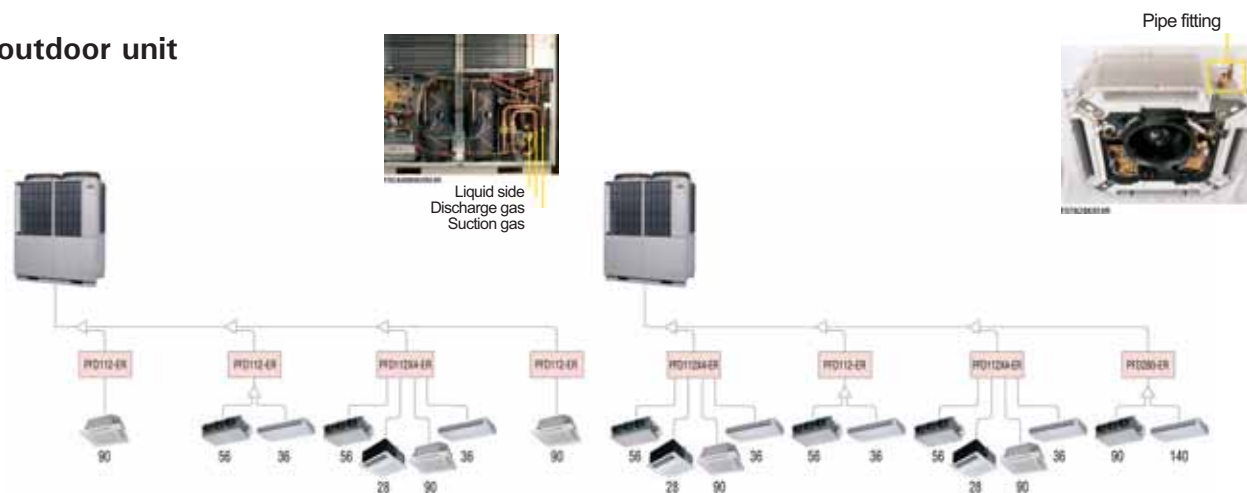
Refrigerant piping

The KXR4 system is manufactured in accordance with the highest standards of quality and reliability and therefore it is essential that the methods of installation and materials used have the same qualitative characteristics, to guarantee long-term trouble-free operation. We recommend using copper refrigerant pipes, which must be chosen allowing for the greater operating pressure of the R410A refrigerant gas.

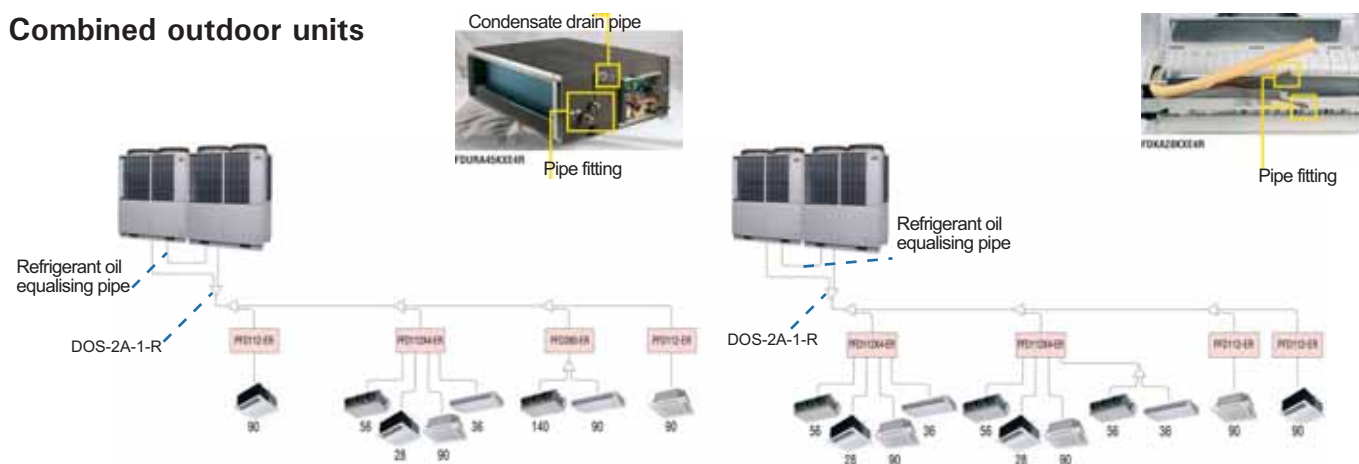
The materials used must respect European standard EN12735 and the RoHS directive, which envisages the prohibition (in other words limiting the use) of lead, mercury, cadmium, hexavalent chrome and some fire retardants in electric and electronic equipment (polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs) to very low values. The connections to the indoor units and those between the outdoor units must be made using the original Mitsubishi Heavy Industries branch kits and header kits.

The additional R410A refrigerant gas must be charged using electronic scales. The additional quantity of gas must be calculated in accordance with the data supplied by the manufacturer, established on the basis of the length and diameter of each section of the refrigerant pipes in the system.

Single outdoor unit



Combined outdoor units



Outdoor unit (HP)		8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	48
Liquid side	Farthest indoor unit =<90 m	3/8"	3/8"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	3/4"	3/4"	3/4"	3/4"	3/4"
Suction gas		3/4"	7/8"	7/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"
Discharge gas		5/8"	3/4"	3/4"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"
Liquid side	Farthest indoor unit =<90 m	1/2"	1/2"	1/2"	1/2"	1/2"	5/8"	5/8"	5/8"	5/8"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	7/8"	7/8"	7/8"	7/8"	7/8"
Suction gas		7/8"	7/8"	7/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"	1.3/8"
Delivery gas		5/8"	3/4"	3/4"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"	1.1/8"

Branches

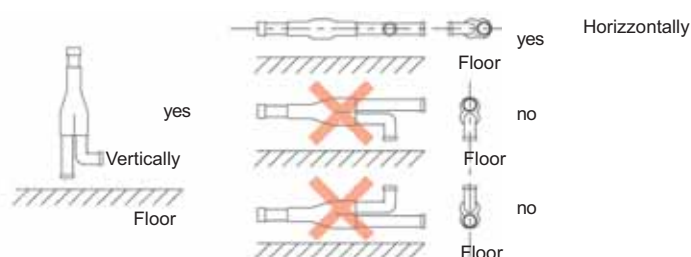


DIS-22-1R/DIS-180-1R

Headers



DOS-2A-1R



For the electrical connections of the KXR4 system refer to the section on the KX4 system on p. 23.

KX4/KXR4

SUPERLINK®

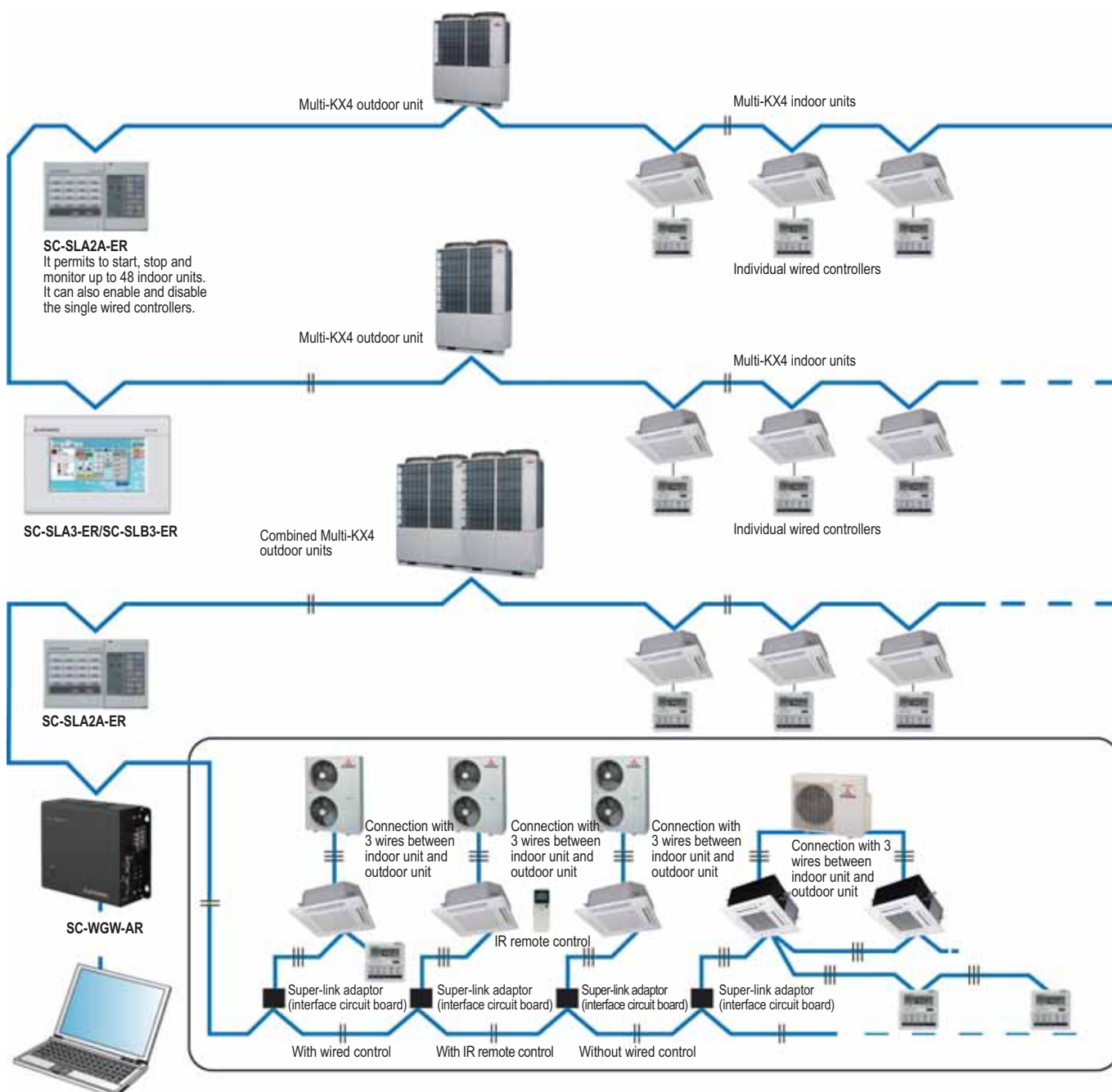
Superlink® Control System - The Mitsubishi Heavy Industries centralized control system

The exclusive Mitsubishi Heavy Industries Superlink fast data transmission system is used to connect air conditioning units in a network and keep them under control from a remote station, optimising the management of small, medium and large surfaces.

With one or more Superlink lines it's possible to manage up to a maximum of 48 units per line. The wide range of individual and centralized controls, and the possible combined use, makes it possible to develop modular systems, differentiated for each control zone.

A control panel can be wired into any point of the network line, guaranteeing the continuity of communication between the indoor units and the controller.

The use of the Superlink reduces the overall section of the wires to install thanks to a cable with 2 non-polarized wires; when designing the plant, this makes integrated planning simple, meaning a significant reduction in installation costs.



Network connection for Mitsubishi Heavy Industries RAC, PAC plants and systems.

The Superlink centralized control system requires a numeric address to be assigned and set for each indoor unit connected to the circuit of the air conditioning system.

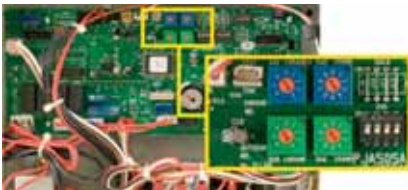
It's possible to set-up the numeric addresses of each indoor unit in 3 different ways:

- 1. automatic setting;
- 2. setting through wired controller;
- 3. manual setting.

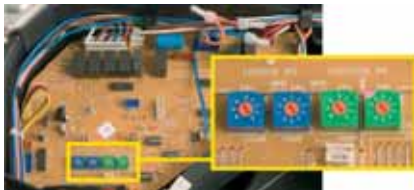
1. The system computer automatically identifies the units connected to the circuit, assigning each of these a network address which is also shown on the display of each individual remote control and on the display of the centralized control (valid for plants with just one outdoor unit).

2. Address setting by remote controller: When a wired remote controller is connected to the indoor units, it is possible to program the unit address by simply using the up down temperature set buttons on the controller. It is necessary to set the outdoor unit address number to 00-47 when setting the system in this way.

3. There are 2 rotary switches on the **PCB** on each **outdoor unit** connected to the air conditioning system, in order to select and set-up the address. Furthermore, there are 4 rotary switches on the **PCB** on each **indoor unit** connected to the air conditioning system, in order to select and set-up the address of the same indoor unit and the outdoor unit of reference.



PCB
FDURA45

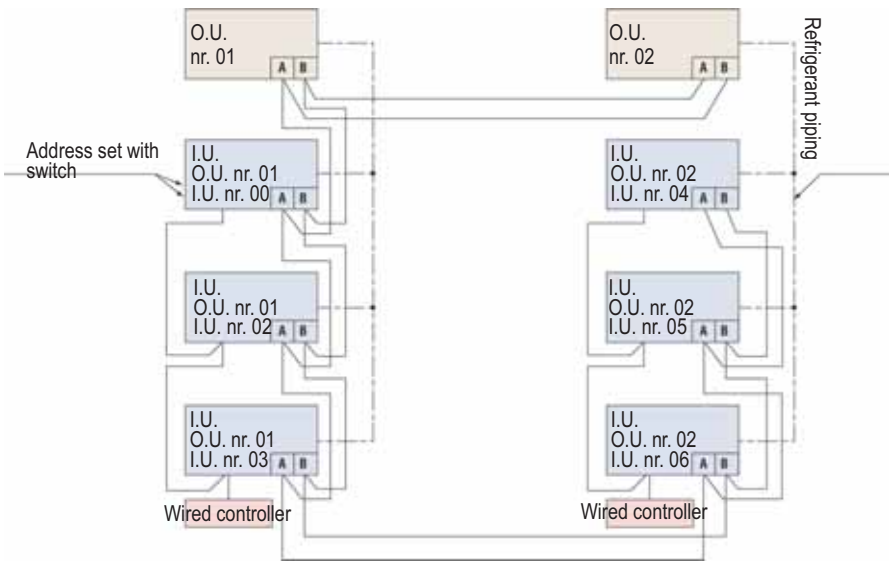


PCB
FDTA28



PCB
FDCA400

Address setting method	O.U.	I.U.	
	N. O.U.	Nr. O.U.	Nr. I.U.
Automatic	49	49	49
With wired controller	00-47	49	49
Manual	00-47	00-47	00-47

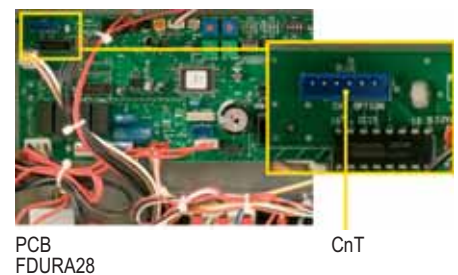
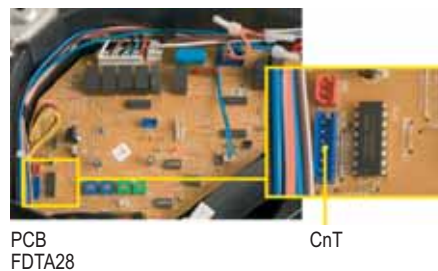
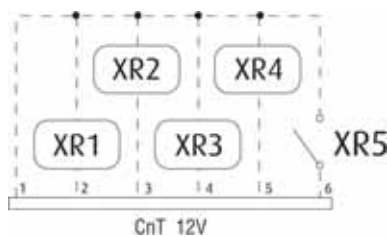
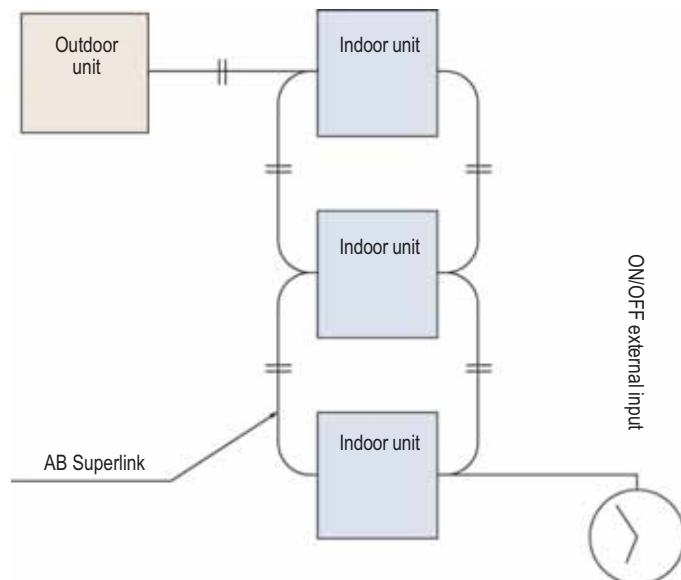


Cnt connector

The indoor units' PCBs have an additional **CnT connector** to connect the unit to an external ON/OFF switch.

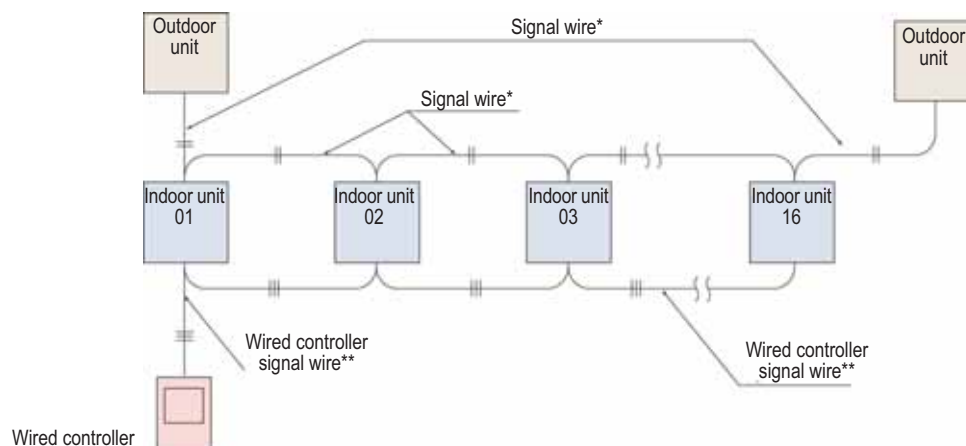
The following operating/anomaly signals can be found on the Cnt connector on the indoor unit PCB:

- XR1: Unit On signal.
- XR2: Unit in heating mode.
- XR3: Thermostat ON signal.
- XR4: Error signal.
- XR5: Digital input from remote instrumentation.



Simultaneous control of indoor units

The system permits the simultaneous control of up to **16 indoor units** with just one wired controller, even if they are connected to different outdoor units. To turn all the units on or off at the same time is allowed. If just one unit in the system registers an anomaly the intervention for verification and protection (and any possible shutdown) will only affect this unit, leaving the rest of the system operational.



* The total length of the signal wire should be less than 1000 m.

** The length of the signal wire of the wired controller and the handshaking for the wired controller between the environments should be less than 600 m.

SC-SLA1-ER

Keyboard panel for centralised ON/OFF of the single indoor units

This centralized control can manage and monitor up to 16 indoor units.

The luminous indicator to the side of each of the 16 buttons indicates the state of the relevant unit: green = on; red = alarm.

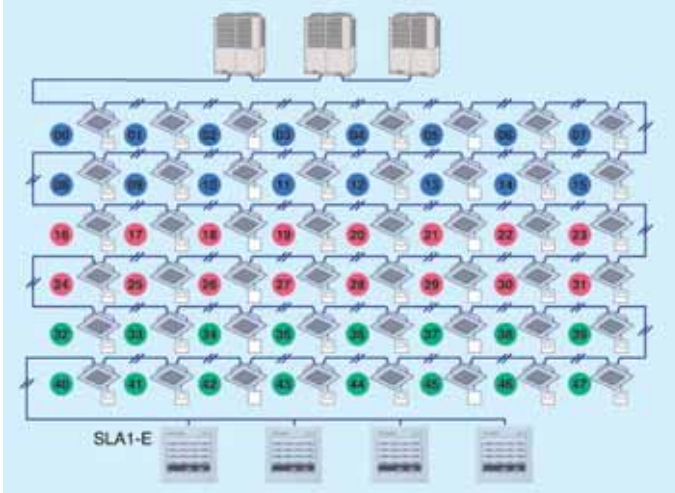
The "ALL" buttons turns all of the units on or off at the same time.

The standard automatic reset function after a blackout doesn't cancel the operating mode that was previously programmed.

Up to six SC-SLA1-ER panels can coexist in a SUPERLINK network.



Example of application of the SC-SLA1-ER console



Model SC-SLA1-ER: width 120 x depth 15+50* x height 120 mm
50 mm built into wall

SC-SLA2A-ER

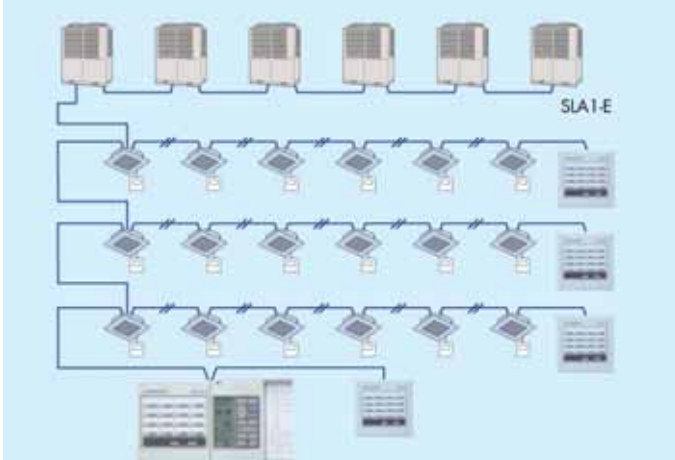
Centralized control panel with keyboard

Connecting the SC-SLA2A-ER centralized control panel to any point of the Superlink line it's possible to control each single unit independently, or control a group of units (up to a maximum of 16) or control all of them simultaneously.

The panel can operate on its own, or in combination with the individual controllers and the SC-SLA1-ER panel.



Example of application of the SC-SLA2A-ER console



Model SC-SLA2A-ER: width 180 x depth 16+50* x height 120 mm
50 mm built into wall

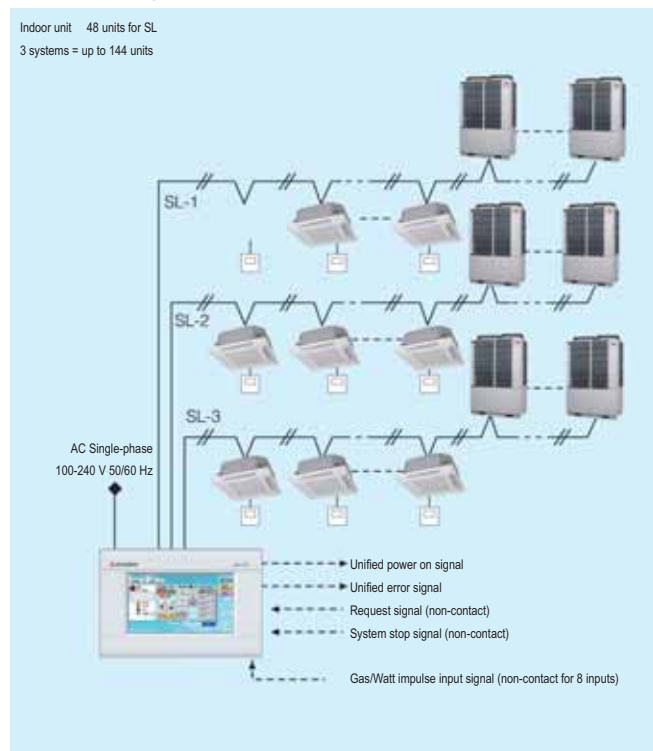
SC-SLA3-ER - LCD colour control panel with touch screen

- Easy access to all functions thanks to a wide LCD colour monitor with touch screen.
- Controls up to 144 indoor units through connection to 3 Superlink lines.
- Up to 16 programmable operating periods per day.
- Easy and flexible management of the system, thanks to the enable/disable function for each operating mode.



KX4/KXR4 - SUPERLINK®

System diagram



Characteristics

Model	SC-SLA3-ER
Item	
Ambient temperature during operation	0 - 40°C
Power	Single-phase 100-240V 50/60 Hz
Absorption	23 W
Outer dimensions (Height x Width x Depth)	162 mm x 240 mm x 108 mm
Net weight	2.2 Kg
Max. number of connectable indoor units	Max 48 units - system x 3 systems = 144 units
LCD touch panel ^{4,5}	7" LCD colour screen
Input	
SL (Super Link) inputs	3 Systems
Impulse input power signals (gas, electricity) ²	Pulse min. 100 ms, max. 8 inputs
Alarm input signal ²	Forced stop non-contact (closed)
Request input signal	Demand control
Output	
Signal for simultaneous activity ²	Output 1: max. 40 mA, 24V. System all OFF: contact open. The contact closes also if just one indoor unit is running
Simultaneous anomaly signals	- 1 output: max. 40 mA, 24V. Normally closed. In the case of error: open ⁶
Contextual operation of other centralized control units	(8)

Notes:

- 1 Some functions are not available with the indoor unit model used.
 - 2 Input for power reading: 12 VDC (10 mA).
 - 3 To calculate the energy consumption, use the SC-SLB3-ER.
 - 4 The LCD monitor has a life of roughly 32,000 hours in relation to the OFF time set for the backlit screen.
 - 5 The touch panel has a life of roughly 1,000,000 touches.
 - 6 On the settings page it's possible to change the output mode of the error signal to 'normally open'.
 - 7 The energy consumption calculated by this device doesn't conform to IOLM standard.
 - 8 It's possible to connect only one SC-SLA2A-ER unit to a Superlink line.
- It cannot be used in combination with the series SC-SLA1-ER, Web, BACnet or LonWorks.
- Several SC-SLA3-AND and SC-SLB3-ER units cannot be connected to the same network.

SC-SLB3-ER

Centralized LCD colour control panel with touch screen and metering function

PWM (Pulse-Width Modulation) impulse inputs:
max 8 inputs.

- Metering function for single air conditioning unit.
The data can be obtained on the basis of 3 different metering criteria:
 - proportional to the hourly operation of the machine and the power requirements;
 - average refrigerant flow used;
 - time each single unit remains on.
- By processing the data saved, a utility of the system calculates the daily energy consumption with respect to the operation of each single unit, and the total energy consumption of the entire system for a given period.
The energy consumption calculated using this device does not conform to IOLM standards (International Organisation of Legal Metrology).



- It is possible to collect and export the data of the units connected to the network using an using an USB memory to process and then reorganize the same with a simple Excel worksheet. The package includes the data management software for calculating the consumption and editing the data gathered.
- If the SC-SLB3-ER panel is mounted on a wall, it may be necessary to use the fixing bracket spacer SLA3 BX, sold separately.

Gateways for the Mitsubishi Heavy Industries Superlink

Mitsubishi Heavy Industries Gateways act as an interface for air conditioning systems with BMS - Building Management System networks – designed to manage the plant engineering in the buildings.

More reliable functions, without the use of a hard drive: the system uses a low-power processor, with a low energy consumption, and a compact flash Rom.

The Mitsubishi Heavy Industries Multi-Thread technology makes the communication between the different Superlink platforms more efficient with respect to traditional sequential management of the threads. The processor manages 2 threads at the same time, guaranteeing greater reliability and a higher data storage capacity.

Superlink® Gateway

Model	SC-WGW-AR	SC-BGW-AR	SC-LGW-AR
Outer dimensions	200 (height) x 260 (width) x 79 (depth) mm		
Power	Single-phase AC 100V-240V (50/60 Hz)		
Number of controlled units	96 indoor units and 12 outdoor units (the indoor units are 64 if SLA-1 and SLA-2A are installed)		
Conditions of use	Temperature: from 0 to 40 °C Humidity: max 85% RH (condensate-free)		
Colour	Black	Blue	Cream
Functions	Control functions: on/off, mode, fan speed, filter reset indicator, remote controller lock/unlock, system forced stop Monitor functions: on/off, error signal, mode, fan speed, room temperature, filter indicator, unit status		

Comparison of centralized controls

	SLA/B-3	WGW	BGW	LGW
Max. number of indoor units	144	64	64	64
Computerized control	-	○	○	○
Control functions				
On/Off	○	○	○	○
Mode	○	○	○	○
Temperature setting	○	○	○	○
Fan speed	○	○	○	○
Louver direction	○	-	-	-
Filter reset indicator	○	○	○	○
Remote controller lock/unlock	○	○	○	○
System forced stop	-	○	○	○
Start/stop all	○	-	△	

	SLA/B-3	WGW	BGW	LGW
Monitor functions				
On/Off	○	○	○	○
Mode	○	○	○	○
Temperature setting	○	○	○	○
Room temperature	○	○	○	○
Fan speed	○	○	○	○
Louver direction	○	-	-	-
Error signal	○	○	○	○
Filter indicator	○	○	○	○
Annual timer	○	○	△	
Failure notice	○	-	△	
Emergency stop	○	-	△	
Energy consumption calculation	○★	-	△	

△ : Depends on the system management programme present on server.

★ : SLB-3 only.

Maximum number of indoor units: 96 units, when SLA isn't installed in a system.

KX4/KXR4 - SUPERLINK®

SC-WGW-AR Superlink Web Gateway

This platform provides a simple monitoring system for small and medium installations. Safe and easy: all it's necessary is Internet Explorer, without any additional software. With a filter on the IP address the system it's possible to select and limit the number of accesses to the platform through 3 different levels of account authentication.



Example of system structure



Ethernet 10BASE-T/100BASE-TX

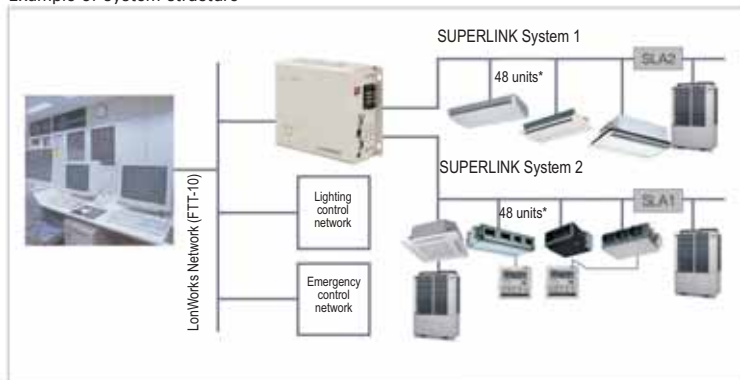
Operating system required: Win2000 or WinXP; 1024x768 monitor resolution; Web browser IE 6.0 or later.

SC-LGW-AR Superlink LonWorks Gateway

This platform permits to connect and check the indoor unit from a centralized station, converting the LonWorks communication data in Superlink communication data. The SC-LGW-A can control up to 96 units*, the highest number of any of the LON systems on the market.



Example of system structure



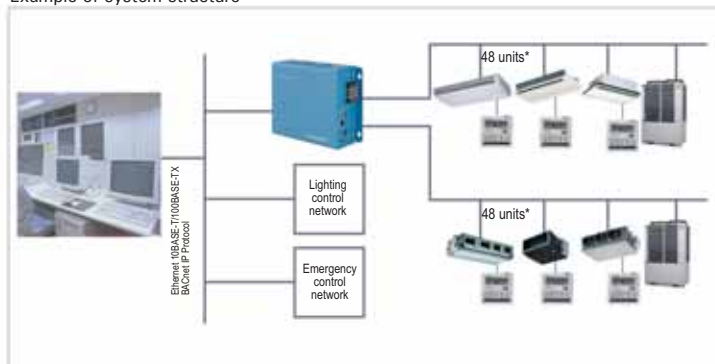
*only if SLA-1, SLA-2A have been installed, up to 64 (32x2 groups).

SC-BGW-AR BACnet Gateway

The platform supports the BACnet/IP protocol for the centralized protocol of the air conditioning system through a BACnet network in the building. Up to 96 indoor units can be controlled with the centralized system; if control panels SC-SLA1-E and SC-SLA2A-ER are installed, up to 64 units (32 x 2) can be connected to the platform.



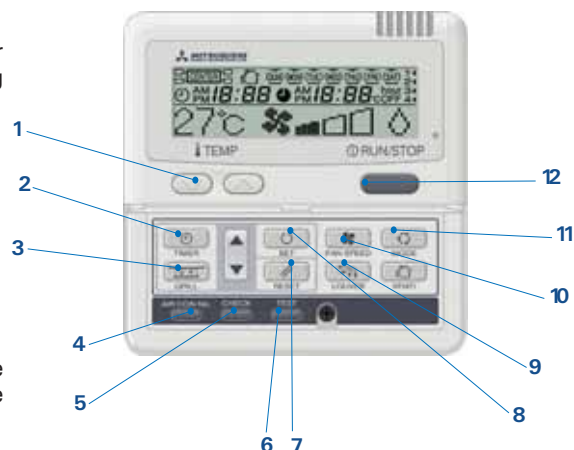
Example of system structure



KX4/KXR4 - CONTROLS

Wired controller with LCD display, RC-E1R

- | | |
|--|--|
| <p>1 TEMP
The room temperature is selected by pressing the buttons.</p> <p>2 TIMER
Enables the Timer function (selection of the weekly timer).</p> <p>3 GRILL
Function not Enabled.</p> <p>4 AIR CON No
Shows the numerical address of the connected unit.</p> <p>5 CHECK
Shows operation mode and the faults recorded.</p> <p>6 TEST
Allows for testing operations in cooling (5°C for 30 min.).</p> <p>7 RESET
Deletes all the programmed settings.</p> | <p>8 SET
Sets timer for switching on or switching off. Also for setting 'Silent mode'.</p> <p>9 LOUVER
Switches on or switches off the louver.</p> <p>10 FAN SPEED
Selects ventilation speed. Settings vary in sequence RAPID>LOW>HIGH.</p> <p>11 MODE
Selects function mode. Each time the button is pressed, the mode varies according to the sequence.</p> <p>12 ON/OFF
Switches air conditioning on or off.</p> |
|--|--|



LCD Display

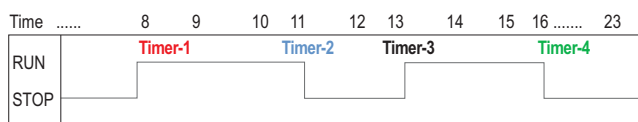
High contrast, large dimension display that gives excellent visualisation of information (settings, operations, errors).

Standard weekly timer

The weekly timer has the following functions:

- programming of 4 daily switch on/pause/switch off phases;
- setting the desired temperature;
- possibility of setting for time periods that are not for usual operation (weekends, holidays, etc.).

These functions allow for optimised use of the system in commercial uses by limiting its functioning to the days and times that are effectively required. The wire control display shows 12 hour intervals, indicating AM and PM. It is possible to set the temperature even after the timer has been programmed.



Data saving function

The exclusive data saving function memorises the functioning cycles and hours of the air conditioner and of the compressor and of any error codes that should arise. This makes programming ordinary maintenance easier and provides simplified diagnosis of malfunctions.

Integrated temperature sensor

The sensor is positioned in the upper corner of the wired controller under the opening with fissures. This improves sensibility of the control device giving a more precise control of the operations.



Settable temperature fields

It is possible to introduce temperature settings and adapt them to the specific requirements of the room. By adjusting the settable temperature limits, excessively cold or hot temperatures are avoided and this will consequently contribute to energy saving.

Adjustable range	
Max. limit	for heating operations
Min. limit	for non heating operations

Optional modes available:

- High ceiling mode: settings for rooms with high ceilings.
- Fan Tap No: variation of speed range settings.
- Filter Sign Enabled/Disabled: indicates filter enabled or disabled.
- Remote Sensor Enabled/Disabled: wired controller sensor enabled or disabled.

KX4/KXR4 - Indoor units

MODEL	4-Way cassette 84x84	4-Way cassette 60x60	2-Way cassette	1-Way cassette	1-Way cassette Ducted 60x60	High Wall
						
2,2 (0.8HP) (2,000 kW)		FDTCA 22 KXE4R			FDTQA 22 KXE4R	FDKA 22 KXE4R
2,8 (1HP) (2,500 kW)	FDTA 28 KXE4R	FDTCA 28 KXE4R	FDTWA 28 KXE4R		FDTQA 28 KXE4R	FDKA 28 KXE4R
3,6 (1.25HP) (3,200 kW)	FDTA 36 KXE4R	FDTCA 36 KXE4R			FDTQA 36 KXE4R	FDKA 36 KXE4R
4,5 (1.6HP) (4,000 kW)	FDTA 45 KXE4R	FDTCA 45 KXE4R	FDTWA 45 KXE4R	FDTSA 45 KXE4R		FDKA 45 KXE4R
5,6 (2HP) (5,000 kW)	FDTA 56 KXE4R	FDTCA 56 KXE4R	FDTWA 56 KXE4R			FDKA 56 KXE4R
7,1 (2.5HP) (6,300kW)	FDTA 71 KXE4R		FDTWA 71 KXE4R	FDTSA 71 KXE4R		FDKA 71 KXE5R
9 (3.2HP) (8,000 kW)	FDTA 90 KXE4R		FDTWA 90 KXE4R			
11,2 (4HP) (10,000 kW)	FDTA 112 KXE4R		FDTWA 112 KXE4R			
14 (5HP) (12,500 kW)	FDTA 140 KXE4R		FDTWA 140 KXE4R			
22,4 (8HP) (20,000 kW)	FDTA 160 KXE4R					
28 (10HP) (25,000 kW)						

Mitsubishi Heavy Industries offers a large range of different indoor units in a variety of typologies and power ratings, with effective solutions to meet various installation requirements.

Various types of indoor units can be chosen– cassette, ceiling, floor, wall and ducted – with different power capacities - BTU or kW – for a total of 61 models, with state-of-the-art technological content in a compact design.

This range makes it possible to realise air conditioning systems for offices, public and commercial buildings, hotels, and anywhere else there is a particularly request for great flexibility in use.

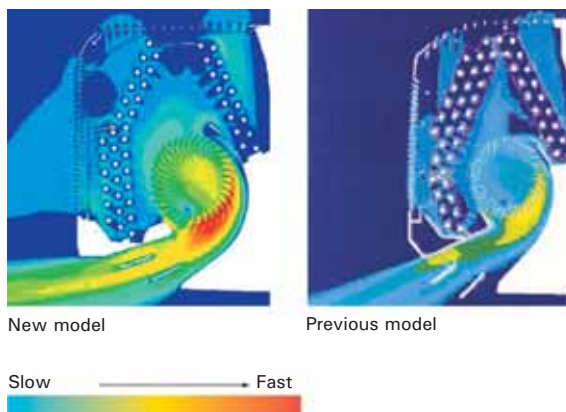
The versatility offered by the numerous applicative solutions available makes it possible to install a centralized air conditioning system with a Superlink network: the indoor units can be controlled autonomously, don't need to be installed at the same time, and are all compatible with the KX4 and the KXR4 systems.

VENTILATION

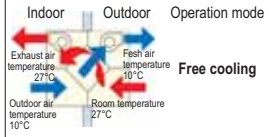
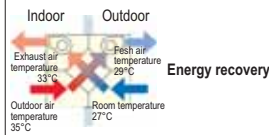
JET AIR SCROLL: aerodynamic technology applied to air conditioning

The airflow obtained with this system ventilates a large volume of air with a minimum energy consumption, because air pockets are drastically reduced. The airflow is uniform, silent, has a long range, and is also suitable for large conditioned environments.

FDKA models: high wall (2.2-7.1kW).



The colours in the photo show the speed of the air.

	Ceiling	Ducted medium	Thin ducted	Ducted high	Floor-exposed	Floor-concealed	Total heat recovery units (SAF)								
															
		FDUMA 22 KXE5R	FDQSA 22 KXE5R				<table><tr><th>Model</th><th>Airflow m³/h</th></tr><tr><td>SAF 500 E4</td><td>500</td></tr><tr><td>SAF 800 E4</td><td>800</td></tr><tr><td>SAF 1000 E4</td><td>1000</td></tr></table>	Model	Airflow m ³ /h	SAF 500 E4	500	SAF 800 E4	800	SAF 1000 E4	1000
Model	Airflow m ³ /h														
SAF 500 E4	500														
SAF 800 E4	800														
SAF 1000 E4	1000														
		FDUMA 28 KXE5R	FDQSA 28 KXE5R		FDFLA 28 KXE4R	FDFUA 28 KXE4R									
FDEA 36 KXE4R	FDUMA 36 KXE5R	FDQSA 36 KXE5R													
FDEA 45 KXE4R	FDUMA 45 KXE5R	FDQSA 45 KXE5R			FDFLA 45 KXE4R	FDFUA 45 KXE4R	 Indoor Outdoor Operation mode Exhaust air temperature 27°C Fresh air temperature 10°C Outdoor air temperature 10°C Room temperature 27°C Free cooling								
FDEA 56 KXE4R	FDUMA 56 KXE5R	FDQSA 56 KXE5R				FDFUA 56 KXE4R									
FDEA 71 KXE4R	FDUMA 71 KXE5R			FDFLA 71 KXE4R	FDFUA 71 KXE4R										
	FDUMA 90 KXE5R														
FDEA 112 KXE4R	FDUMA 112 KXE5R														
FDEA 140 KXE4R	FDUMA 140 KXE5R						 Indoor Outdoor Exhaust air temperature 33°C Fresh air temperature 29°C Outdoor air temperature 35°C Room temperature 27°C Energy recovery								
				FDUA 224 KXE4R											
				FDUA 280 KXE4R											

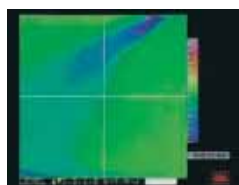
Total heat recovery units (SAF) of the Mitsubishi Heavy Industries commercial line can be integrated in KX4/KXR4 systems.

AIR QUALITY

New design of the air louver



Previous series
The airflow dirties the panel



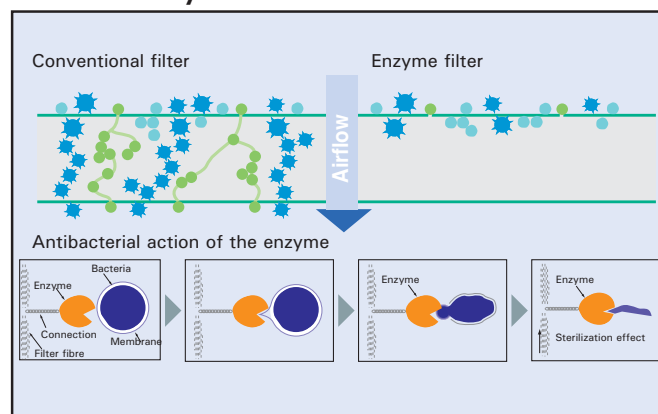
New series
The new design and airflow reduce the formation of dirt on the panel

Mitsubishi Heavy Industries has redesigned the shape and the opening angle of the louver: therefore the flow is distributed in a uniform and optimal way throughout the entire volume of the environment, guaranteeing a significant reduction in the noise impact, and also in the formation and accumulation of dust on the panel and ceiling.

FDTA models: 4-way cassette 84x84 (2.8-16.0 kW); FDTCA: 4-way cassette 60x60 (2.2-5.6 kW).

FILTERS

Natural enzyme filter



From the Mitsubishi Heavy Industries research laboratories, another revolutionary new way to purify air. The filter with natural sterilizing enzymes, unlike the components of traditional filters, doesn't contain chemical compounds or heavy metals. The action of the enzymes is local, eliminating the risk of material irradiated or dispersed in the environment. The enzymes attack the micro-organisms in the air, responsible for many air-borne pathologies, trapping them in the filter and destroying them.

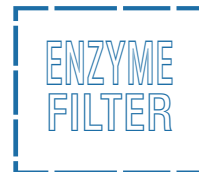
FDTA models: 84x84 4-way cassette (2.8-16.0kW).

KX4/KXR4 - Indoor units

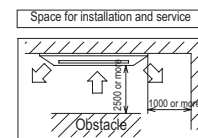
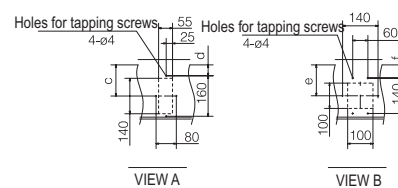
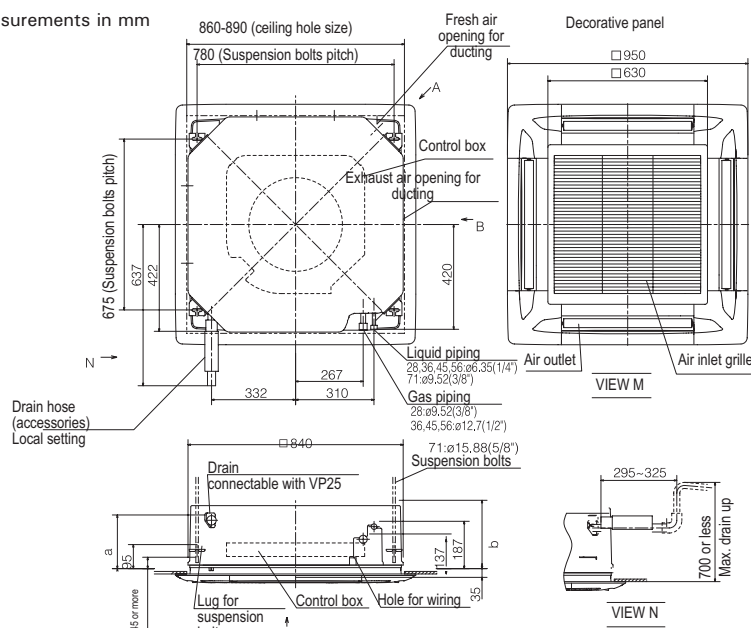
FDTA: 4-way cassette 84x84

- Air conditioning unit with 4-way cassette available in 9 power capacities (2.8kW-16.0kW).
- Condensate drain pump on all models.
- Ideal for commercial applications: the cassette is invisible as it can be fully recessed in the false-ceiling.
- New panel design that prevents ceiling stains.
- Max. noise reduction: only 31 dB(A) (models FDTA 28-45 KXE4R).
- Angle kit with RCN-T-W-ER remote controller (optional).
- Enzyme filter (optional): HA05041.

FDTA28KXE4R 2.8kW
FDTA36KXE4R 3.6kW
FDTA45KXE4R 4.5kW
FDTA56KXE4R 5.6kW
FDTA71KXE4R 7.1kW
FDTA90KXE4R 9.0kW
FDTA112KXE4R 11.2kW
FDTA140KXE4R 14.0kW
FDTA160KXE4R 16.0kW



Measurements in mm



Dimension table

Model	a	b	c	d	e	f
FDTA28KXE4R-71KXE4R	212	270	123	43	122	52
FDTA90KXE4R	212	295	148	68	147	77
FDTA112KXE4R-140KXE4R	269	365	218	138	215	147

Calculation of the noise levels: 1.5 m from bottom and central part of the unit.

MODEL			FDTA 28 KXE4R	FDTA 36 KXE4R	FDTA 45 KXE4R	FDTA 56 KXE4R	FDTA 71 KXE4R	FDTA 90 KXE4R	FDTA 112 KXE4R	FDTA 140 KXE4R	FDTA 160 KXE4R
Cooling capacity		kW	2,80	3,60	4,50	5,60	7,10	9,00	11,20	14,00	16,00
Heating capacity		kW	3,20	4,00	5,00	6,30	8,00	10,00	12,50	16,00	18,00
Power	Ph-V-Hz		1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ
DIMENSIONS											
Dimensions	internal	height x width x depth	mm	270x840x840	270x840x840	270x840x840	270x840x840	295x840x840	365x840x840	365x840x840	365x840x840
	panel	height x width x depth	mm	35x950x950	35x950x950	35x950x950	35x950x950	35x950x950	35x950x950	35x950x950	35x950x950
Weight	internal		Kg	24	24	24	24	26	31	31	31
	panel		Kg	7	7	7	7	7	7	7	7
AIR CONDITIONING											
Motor and quantity		W	14 x 1	14 x 1	14 x 1	14 x 1	20 x 1	40 x 1	120 x 1	120 x 1	120 x 1
Treated air (Hi/Med/Lo)		m³/h	900-840-780	900-840-780	900-840-780	900-840-780	900-840-780	1260-1140-1020	1620-1380-1200	1740-1560-1380	1740-1560-1380
Useful head (Hi speed)		Pa	-	-	-	-	-	-	-	-	-
Noise level (Hi/Lo) TQA - QRA		dB(A)	35-33-31	35-33-31	35-33-31	36-34-32	37-35-33	43-41-38	43-41-38	45-43-41	45-43-41
Fresh air inlet			Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible
Air filter and quantity			Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)
PIPING SPECIFICATIONS											
Pipe diameter	Liquid side	mm(in)	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")	ø9.52 (3/8")	ø9.52 (3/8")	ø9.52 (3/8")	ø9.52 (3/8")	ø9.52 (3/8")
	Gas side	mm(in)	ø9.52 (3/8")	ø12.7 (1/2")	ø12.7 (1/2")	ø12.7 (1/2")	ø15.88 (5/8")	ø15.88 (5/8")	ø15.88 (5/8")	ø15.88 (5/8")	ø15.88 (5/8")
CONTROL SYSTEMS											
Mounting kit			Mounting kit (opt. RC-ER)	Mounting kit (opt. RC-ER)	Mounting kit (opt. RC-ER)	Mounting kit (opt. RC-ER)	Mounting kit (opt. RC-ER)	Mounting kit (opt. RC-ER)	Mounting kit (opt. RC-ER)	Mounting kit (opt. RC-ER)	Mounting kit (opt. RC-ER)
Condensate drain			Condensate drain (opt. RC-ER)	Condensate drain (opt. RC-ER)	Condensate drain (opt. RC-ER)	Condensate drain (opt. RC-ER)	Condensate drain (opt. RC-ER)	Condensate drain (opt. RC-ER)	Condensate drain (opt. RC-ER)	Condensate drain (opt. RC-ER)	Condensate drain (opt. RC-ER)
ACCESSORY PARTS											
Optional parts			T-PSA-35W-ER	T-PSA-35W-ER	T-PSA-35W-ER	T-PSA-35W-ER	T-PSA-35W-ER	T-PSA-35W-ER	T-PSA-35W-ER	T-PSA-35W-ER	T-PSA-35W-ER

KX4/KXR4 - Indoor units

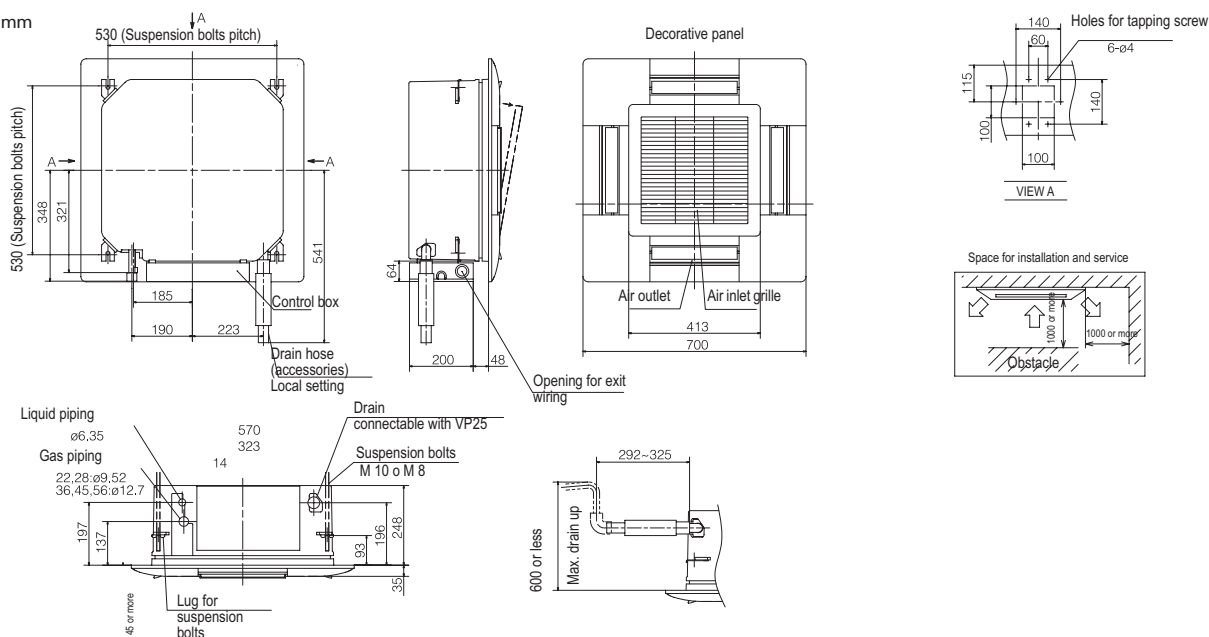
FDTCA: 4-way cassette 60x60

- Air conditioning unit with 4-way cassette for recessed installation in modular ceilings, available in 5 power capacities (2.2-5.6kW).
- Condensate drain pump on all models.
- New panel design that prevents ceiling stains.
- Ultra-compact design: only 24.8 cm in height.
- Max. noise reduction: only 32 dB(A) (models FDTCA 22-28 KXE4R).
- Angle kit with RCN-T-W-ER remote control (optional).

FDTCA22KXE4R 2.2kW
FDTCA28KXE4R 2.8kW
FDTCA36KXE4R 3.6kW
FDTCA45KXE4R 4.5kW
FDTCA56KXE4R 5.6kW



Measurements in mm



Calculation of the noise levels: 1.5 m from bottom and central part of the unit.

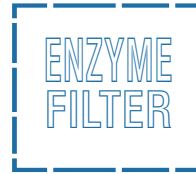
MODEL			FDTCA 22 KXE4R	FDTCA 28 KXE4R	FDTCA 36 KXE4R	FDTCA 45 KXE4R	FDTCA 56 KXE4R
Cooling capacity		kW	2,20	2,80	3,60	4,50	5,60
Heating capacity		kW	2,50	3,20	4,00	5,00	6,30
Power	Ph-V-Hz		1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ
DIMENSIONS							
Dimensions internal	height x width x depth	mm	248x570x570	248x570x570	248x570x570	248x570x570	248x570x570
panel	height x width x depth	mm	35x700x700	35x700x700	35x700x700	35x700x700	35x700x700
Weight internal		Kg	15	15	16	16	16
panel		Kg	3,5	3,5	3,5	3,5	3,5
AIR CONDITIONING							
Motor and quantity		W	50 x 1	50 x 1	50 x 1	50 x 1	50 x 1
Treated air (Hi/Med/Lo)		m³/h	570-510-480	570-510-480	600-540-480	660-600-540	780-690-600
Useful head (Hi speed)		Pa	-	-	-	-	-
Noise level (Hi/Lo) TQA - QRA		dB(A)	35-33-32	35-33-32	38-36-34	40-38-36	45-42-39
Fresh air inlet			No possible	No possible	No possible	No possible	No possible
Air filter and quantity			Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)
PIPING SPECIFICATIONS							
Pipe diameter	Liquid side	mm(in)	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")
	Gas side	mm(in)	ø9.52 (3/8")	ø9.52 (3/8")	ø12.7 (1/2")	ø12.7 (1/2")	ø12.7 (1/2")
CONTROL SYSTEMS							
ACCESSORY PARTS							
OPTIONAL PARTS							
			Wired controller RC-E1R-RCN-E1R (opt.)	Wired controller RC-E1R-RCN-E1R (opt.)	Wired controller RC-E1R-RCN-E1R (opt.)	Wired controller RC-E1R-RCN-E1R (opt.)	Wired controller RC-E1R-RCN-E1R (opt.)
			Mounting kit	Mounting kit	Mounting kit	Mounting kit	Mounting kit
			Condensate drain	Condensate drain	Condensate drain	Condensate drain	Condensate drain
			TC-PSA-24W-ER	TC-PSA-24W-ER	TC-PSA-24W-ER	TC-PSA-24W-ER	TC-PSA-24W-ER

KX4/KXR4 - Indoor units

FDTWA: 2-way cassette

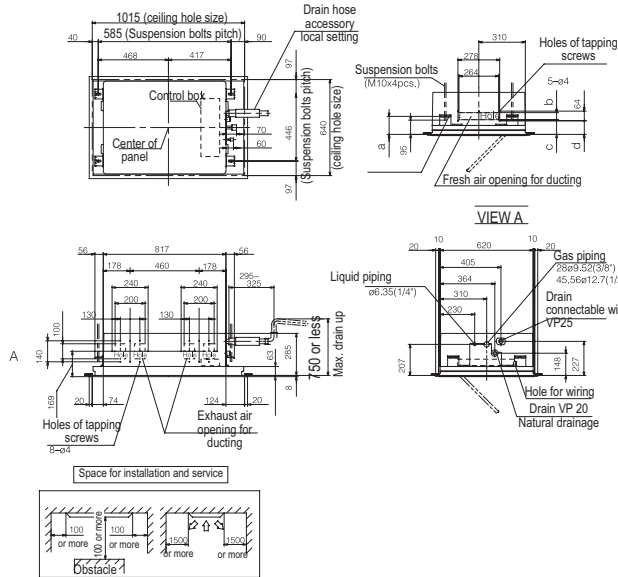
- Air conditioning unit with 2-way cassette, available in 2 models and 7 power capacities (2.8-14.0 kW).
- Can be fully recessed into false-ceiling, for optimal air distribution in environments with a rectangular perimeter.
- Ultra-compact design: only 28.5 cm high (models FDTWA 28 -56 KXE4R).
- Max. noise reduction: only 33 dB(A) (models FDTWA 28 -56 KXE4R).
- Enzyme filter (optional):
HA05042 + HA04594 (28-56kW);
HA05043 + HA04652 (71-90kW);
HA05044 + HA04655 (112-140kW).

FDTWA28KXE4R 2.8kW
FDTWA45KXE4R 4.5kW
FDTWA56KXE4R 5.6kW
FDTWA71KXE4R 7.1kW
FDTWA90KXE4R 9.0kW
FDTWA112KXE4R 11.2kW
FDTWA140KXE4R 14.0kW

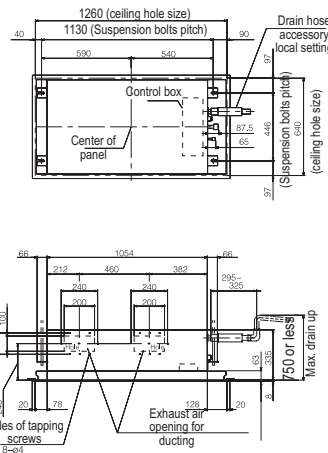


Measurements in mm

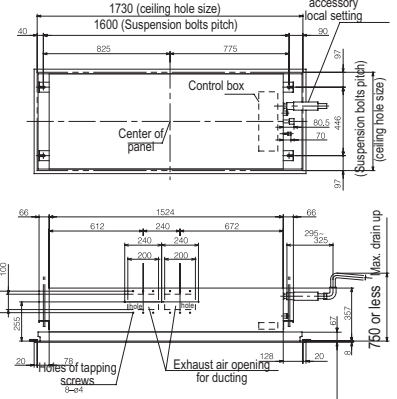
FDTWA28KXE4R, 45KXE4R, 56KXE4R



FDTWA71KXE4R, 90KXE4R



FDTWA112KXE4R, 140KXE4R



Dimension table

Model	a	b	c	d	e	f
FDTWA28, 45, 56KXE4R	120	47	98	91	1055	965
FDTWA71, 90KXE4R	120	50	95	88	1300	1210
FDTA112, 140KXE4R	130	50	110	103	1770	1680

Calculation of the noise levels: 1.5 m from bottom and central part of the unit.

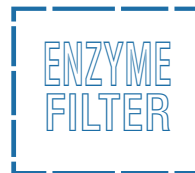
MODEL			FDTWA 28 KXE4R	FDTWA 45 KXE4R	FDTWA 56 KXE4R	FDTWA 71 KXE4R	FDTWA 90 KXE4R	FDTWA 112 KXE4R	FDTWA 140 KXE4R
Cooling capacity		kW	2,80	4,50	5,60	7,10	9,00	11,20	14,00
Heating capacity		kW	3,20	5,00	6,30	8,00	10,00	12,50	16,00
Power	Ph-V-Hz		1-220-240V 50HZ	1-220-240V 50HZ	1-220-240V 50HZ	1-220-240V 50HZ	1-220-240V 50HZ	1-220-240V 50HZ	1-220-240V 50HZ
DIMENSIONS									
Dimensions internal	height x width x depth	mm	285x817x620	285x817x620	285x817x620	335x1054x620	335x1054x620	357x1524x620	357x1524x620
panel	height x width x depth	mm	8x1055x680	8x1055x680	8x1055x680	8x1300x680	8x1300x680	8x1770x680	8x1770x680
Weight internal		Kg	19	19	19	26	26	38	38
panel		Kg	7	7	7	9	9	11	11
AIR CONDITIONING									
Motor and quantity		W	30 x 1	30 x 1	30 x 1	35 x 1	40 x 1	40 x 2	50 x 2
Treated air (Hi/Med/Lo)		m³/h	840-720-600	840-720-600	840-720-600	960-780-660	1140-960-720	1680-1500-1380	1920-1680-1440
Useful head (Hi speed)		Pa	-	-	-	-	-	-	-
Noise level (Hi/Lo) TQA - QRA		dB(A)	39-36-33	39-36-33	39-36-33	41-38-35	41-39-36	44-41-38	45-42-39
Fresh air inlet			Possible	Possible	Possible	Possible	Possible	Possible	Possible
Air filter and quantity			Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)
PIPING SPECIFICATIONS									
Pipe diameter	Liquid side	mm(in)	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")	ø9.52 (3/8")	ø9.52 (3/8")	ø9.52 (3/8")	ø9.52 (3/8")
	Gas side	mm(in)	ø9.52 (3/8")	ø12.7 (1/2")	ø12.7 (1/2")	ø15.88 (5/8")	ø15.88 (5/8")	ø15.88 (5/8")	ø15.88 (5/8")
CONTROL SYSTEMS			RC-E1R (opt.)	RC-E1R (opt.)	RC-E1R (opt.)	RC-E1R (opt.)	RC-E1R (opt.)	RC-E1R (opt.)	RC-E1R (opt.)
ACCESSORY PARTS			Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain
OPTIONAL PARTS			TW-PSA-23W-ER	TW-PSA-23W-ER	TW-PSA-23W-ER	TW-PSA-33W-ER	TW-PSA-33W-ER	TW-PSA-43W-ER	TW-PSA-43W-ER

KX4/KXR4 - Indoor units

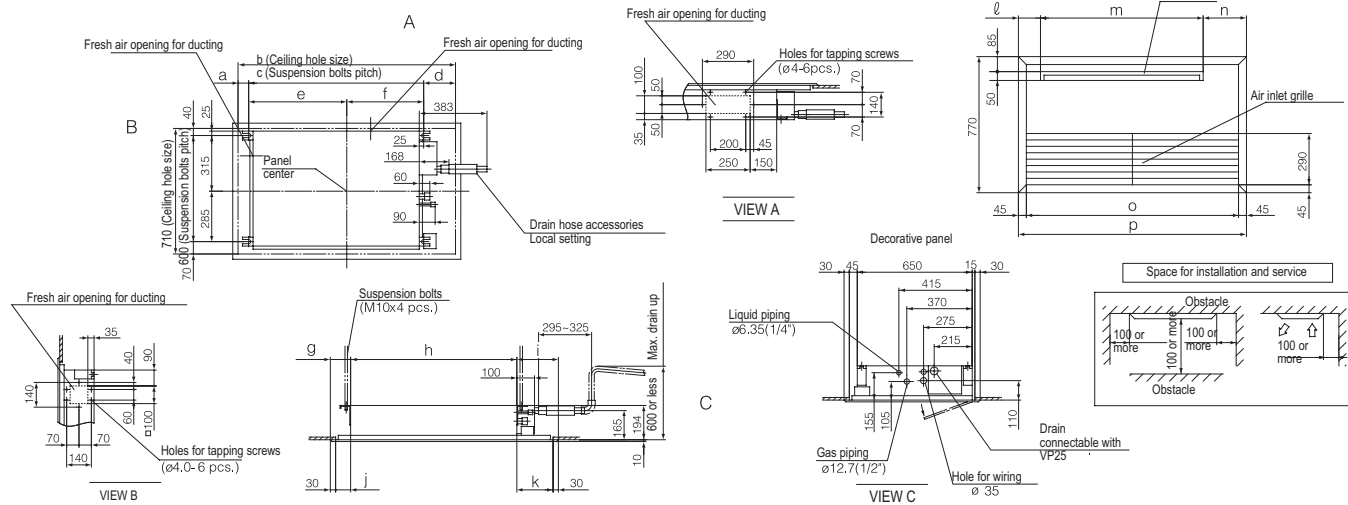
FDTSA: 1-way cassette

- Air conditioning unit with 1-way cassette, available in 2 power capacities (4.5 and 7.1 kW).
- Ideal for installations in environments with low false-ceilings.
- Ultra-compact design: only 19.4 cm high.
- High capacity airflow, ideal for environments with very high ceilings.
- Can be installed on ceiling with unit suspended or recessed in false-ceiling.
- Possibility of connection to ducts for air recirculation.
- Enzyme filter (optional): HA05045 (45kW); HA05046 (71kW).

FDTSA45KXE4R 4.5kW
FDTSA71KXE4R 7.1kW



Measurements in mm FDTSA45KXE4R



Calculation of the noise levels: 1.5 m from bottom and central part of the unit.

MODEL			FDTSA 45 KXE4R	FDTSA 71 KXE4R
Cooling capacity		kW	4,50	7,10
Heating capacity		kW	5,00	8,00
Power	Ph-V-Hz		1-220~240V 50HZ	1-220~240V 50HZ
DIMENSIONS				
Dimensions internal	height x width x depth	mm	194x1040x650	194x1300x650
panel	height x width x depth	mm	10X1290X770	10X1500X790
Weight internal		Kg	26	30
panel		Kg	6	7
AIR CONDITIONING				
Motor and quantity		W	40 x 1	25 x 2
Treated air (Hi/Med/Lo)		m³/h	840-720-600	1080-900-720
Useful head (Hi speed)		Pa	-	-
Noise level (Hi/Lo) TQA - QRA		dB(A)	43-40-38	44-40-38
Fresh air inlet			Possible	Possible
Air filter and quantity			Long life filter x 1 (washable)	Long life filter x 1 (washable)
PIPING SPECIFICATIONS				
Pipe diameter	Liquid side	mm(in)	ø6.35 (1/4")	ø9.52 (3/8")
	Gas side	mm(in)	ø12.7 (1/2")	ø15.88 (5/8")
CONTROL SYSTEMS				
			RC-E1R (opt.)	RC-E1R (opt.)
ACCESSORY PARTS				
			Mounting kit; Condensate drain	Mounting kit; Condensate drain
OPTIONAL PARTS				
			TS-PSA-38W-ER	TS-PSA-38W-ER

FDTQA: 1-way cassette 60x60

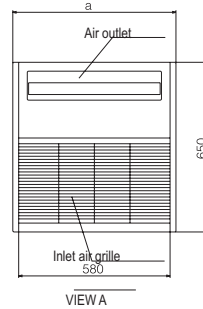
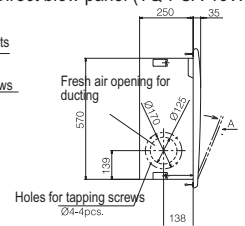
- FDTQA22KXE4R 2.2kW
FDTQA28KXE4R 2.8kW
FDTQA36KXE4R 3.6kW



Model	Dimensions	Type
TQ-PSA-13W-ER	625x650	with flaps
QR-PNA-13W-ER	625x650	blind

Direct blow panel (TQ-PSA-13W-E)

Direct blow panel (TQ-PSA-13W-E)



Gas piping
22, 28, 36, 49, 52 (3/8")
36 (1 1/2")

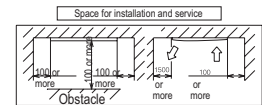
Liquid piping
Ø6.35 (1/4")

Drain connector with VP25

Opening for exit wiring

VIEW B

VIEW B



MODEL			FDTQA 22 KXE4R	FDTQA 28 KXE4R	FDTQA 36 KXE4R
Panel Direct blow			TQ-PSA-13W-ER	TQ-PSA-13W-ER	TQ-PSA-13W-ER
Ducted			QR-PNA-13W-ER	QR-PNA-13W-ER	QR-PNA-13W-ER
Cooling capacity	Ph-V-Hz	kW	2,20	2,80	3,60
Heating capacity		kW	2,50	3,20	4,00
Power			1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ
DIMENSIONS					
Dimensions internal	height x width x depth	mm	250x570x570	250x570x570	250x570x570
TQA – QRA panel	height x width x depth	mm	TQ-QR A 35x625x650	TQ-QR A 35x625x650	TQ-QR A 35x625x650
Weight internal		Kg	19	19	19
TQA - QRA panel		Kg	TQ-QR A 2,5	TQ-QR A 2,5	TQ-QR A 2,5
AIR CONDITIONING					
Motor and quantity		W	20 x 1	20 x 1	20 x 1
Treated air		m³/h	420-324	420-324	420-324
Useful head (Hi speed)		Pa	-	-	-
Noise level (Hi/Lo) TQA - QRA		dB(A)	TQ A 38-34 - QR A 42-39	TQ A 38-34 - QR A 42-39	TQ A 38-34 - QR A 42-39
Fresh air inlet			Possible	Possible	Possible
Air filter and quantity			Long life filter x 1 (washable)	Long life filter x 1 (washable)	Long life filter x 1 (washable)
PIPING SPECIFICATIONS					
Pipe diameter	Liquid side	mm(in)	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")
	Gas side	mm(in)	ø9.52 (3/8")	ø9.52 (3/8")	ø12.7 (1/2")
CONTROL SYSTEMS			RC-E1R (opt.)	RC-E1R (opt.)	RC-E1R (opt.)
ACCESSORIES			Mounting kit: Condensate drain	Mounting kit: Condensate drain	Mounting kit: Condensate drain

KX4/KXR4 - Indoor units

FDKA: high wall

- High-wall air conditioning unit available in 2 models and 6 power capacities (2.2-7.1 kW).
- Simple, modern design, for a perfect integration in any environment.
- Ultra-compact dimensions: just 19.4 cm in depth (model FDKA 71 KXE5R).
- Simple maintenance and cleaning of the filters thanks to the easy-to-remove front panel.
- Jet Air Scroll technology, which produces a uniform, silent, long-range airflow.

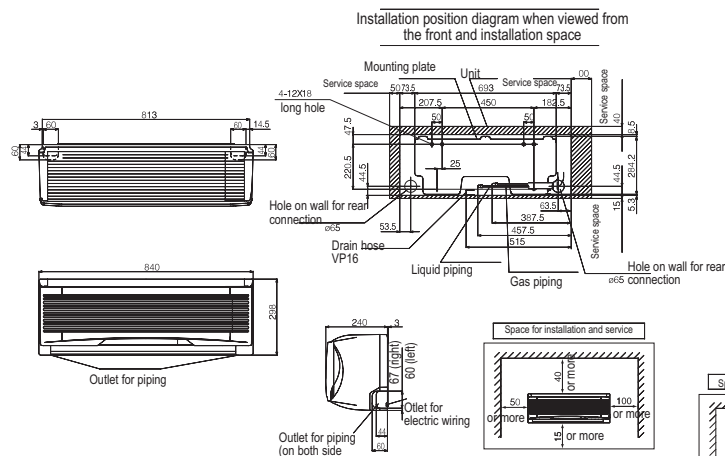
FDKA22KXE4R 2.2kW
FDKA28KXE4R 2.8kW
FDKA36KXE4R 3.6kW
FDKA45KXE4R 4.5kW
FDKA56KXE4R 5.6kW
FDKA71KXE5R 7.1kW



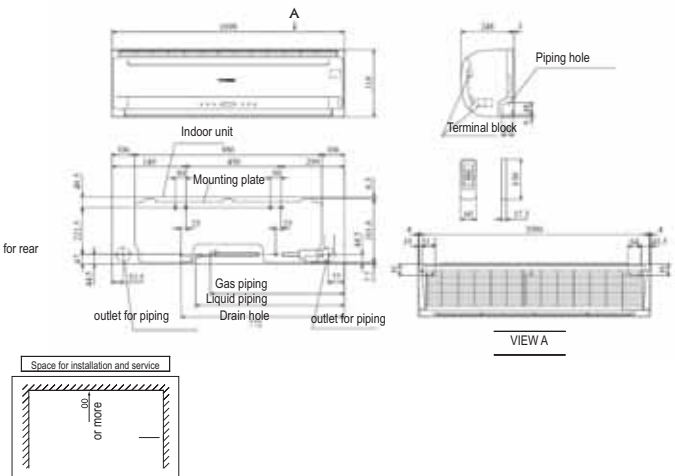
Measurements in mm

FDKA71KXE5R can be connected with FDCA224-1360HKXE4R (8HP-48HP)

FDKA22KXE4R, 28KXE4R, 36KXE4R, 45KXE4R, 56KXE4R



FDKA71KXE5R



Calculation of the noise levels: 1 m from bottom part of the unit;
1 m from central bottom point.

MODEL			FDKA 22 KXE4R	FDKA 28 KXE4R	FDKA 36 KXE4R	FDKA 45 KXE4R	FDKA 56 KXE4R	FDKA 71 KXE4R
Cooling capacity		kW	2,20	2,80	3,60	4,50	5,60	7,10
Heating capacity		kW	2,50	3,20	4,00	5,00	6,30	8,00
Power	Ph-V-Hz		1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ
DIMENSIONS								
Dimensions internal	height x width x depth	mm	298x840x240	298x840x240	298x840x240	298x840x240	298x840x240	375x1436x194
panel	height x width x depth	mm	-	-	-	-	-	-
Weight internal		Kg	12	12	12	12,5	13	22
panel		Kg	-	-	-	-	-	-
AIR CONDITIONING								
Motor and quantity		W	33 x 1	33 x 1	33 x 1	33 x 1	33 x 1	45 x 1
Treated air (Hi/Med/Lo)		m³/h	480-420-360	480-420-360	600-540-420	660-540-420	840-720-600	1260-1080-900
Useful head (Hi speed)		Pa	-	-	-	-	-	-
Noise level (Hi/Lo) TQA - QRA		dB(A)	40-36-32	40-36-32	41-37-33	41-37-32	46-43-39	47-44-40
Fresh air inlet			No possible	No possible	No possible	No possible	No possible	No possible
Air filter and quantity			Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)
PIPING SPECIFICATIONS								
Pipe diameter	Liquid side	mm(in)	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")	ø9.52 (3/8")
	Gas side	mm(in)	ø9.52 (3/8")	ø9.52 (3/8")	ø12.7 (1/2")	ø12.7 (1/2")	ø12.7 (1/2")	ø15.88 (5/8")
CONTROL SYSTEMS								
ACCESSORY PARTS								
OPTIONAL PARTS								
			RC-E1R - RCN E1R (opt)	RC-E1R - RCN E1R (opt)	RC-E1R - RCN E1R (opt)	RC-E1R - RCN E1R (opt)	RC-E1R - RCN E1R (opt)	RC-E1R - RCN E1R (opt)
			Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain
			-	-	-	-	-	-

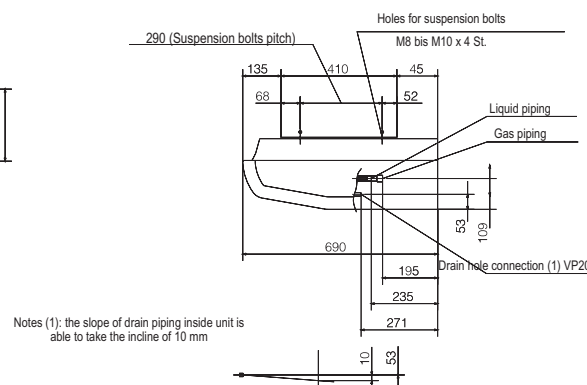
FDEA: ceiling

- FDEA36KXE4R 3.6kW
FDEA45KXE4R 4.5kW
FDEA56KXE4R 5.6kW
FDEA71KXE4R 7.1kW
FDEA112KXE4R 11.2kW
FDEA140KXE4R 14.0kW



ENZYME
FILTER

Model	a	b	c	d	e
FDEA36KXE4R-56KXE4R	1022	990	1070	215	210
FDEA71KXE4R	1272	1240	1320	215	210
FDEA112KXF4R-140KXF4R	1572	1540	1620	255	250

[illegible]

Space for installation and service

100 or more

150 or more

800 or more

Obstacle

80 or more

MODEL			FDEA 36 KXE4R	FDEA 45 KXE4R	FDEA 56 KXE4R	FDEA 71 KXE4R	FDEA 112 KXE4R	FDEA 140 KXE4R
Cooling capacity		kW	3,60	4,50	5,60	7,10	11,20	14,00
Heating capacity		kW	4,00	5,00	6,30	8,00	12,50	16,00
Power	Ph-V-Hz		1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ
DIMENSIONS								
Dimensions internal	height x width x depth	mm	210x1070x690	210x1070x690	210x1070x690	210x1320x690	210x1620x690	210x1620x690
panel	height x width x depth	mm	-	-	-	-	-	-
Weight internal		Kg	30	30	30	36	46	46
panel		Kg	-	-	-	-	-	-
AIR CONDITIONING								
Motor and quantity		W	25 x 1	25 x 1	25 x 1	25 x 2	30 x 2	38 x 2
Treated air (Hi/Med/Lo)		m³/h	660-540-420	660-540-420	660-540-420	1080-840-720	1560-1380-1260	1740-1560-1380
Useful head (Hi speed)		Pa	-	-	-	-	-	-
Noise level (Hi/Lo) TQA - QRA		dB(A)	39-38-36	39-38-36	39-38-36	41-39-37	44-41-39	46-44-43
Fresh air inlet			No possible	No possible	No possible	No possible	No possible	No possible
Air filter and quantity			Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)
PIPING SPECIFICATIONS								
Pipe diameter	Liquid side	mm(in)	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")	ø9.52 (3/8")	ø9.52 (3/8")	ø9.52 (3/8")
	Gas side	mm(in)	ø12.7 (1/2")	ø12.7 (1/2")	ø12.7 (1/2")	ø15.88 (5/8")	ø15.88 (5/8")	ø15.88 (5/8")
CONTROL SYSTEMS			RC-E1R - RCN E1R (opt.)	RC-E1R - RCN E1R (opt.)	RC-E1R - RCN E1R (opt.)	RC-E1R - RCN E1R (opt.)	RC-E1R - RCN E1R (opt.)	RC-E1R - RCN E1R (opt.)
ACCESSORY PARTS			Mounting kit condensate drain	Mounting kit condensate drain	Mounting kit condensate drain	Mounting kit condensate drain	Mounting kit condensate drain	Mounting kit condensate drain
OPTIONAL PARTS			-	-	-	-	-	-

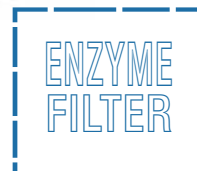
KX4/KXR4 - Indoor units

FDUMA: ducted medium

- Ducted air conditioning unit, available in 9 power capacities (2.2-14.0 kW).
- Ideal for conditioning small/medium sized environments.
- Max. noise reduction: only 29 dB(A) (models FDUMA 22-71 KXE4R).
- Ultra-compact design: only 29.9 cm high (models FDUMA 45-71 KXE4R).
- Condensate drain pump on all models.
- Enzyme filter (optional): HA05030 (22 36kW); HA05031 (45-56kW); HA05032 (71-90kW); HA05033 (112-140kW).

FDUMA22KXE5R 2.2kW

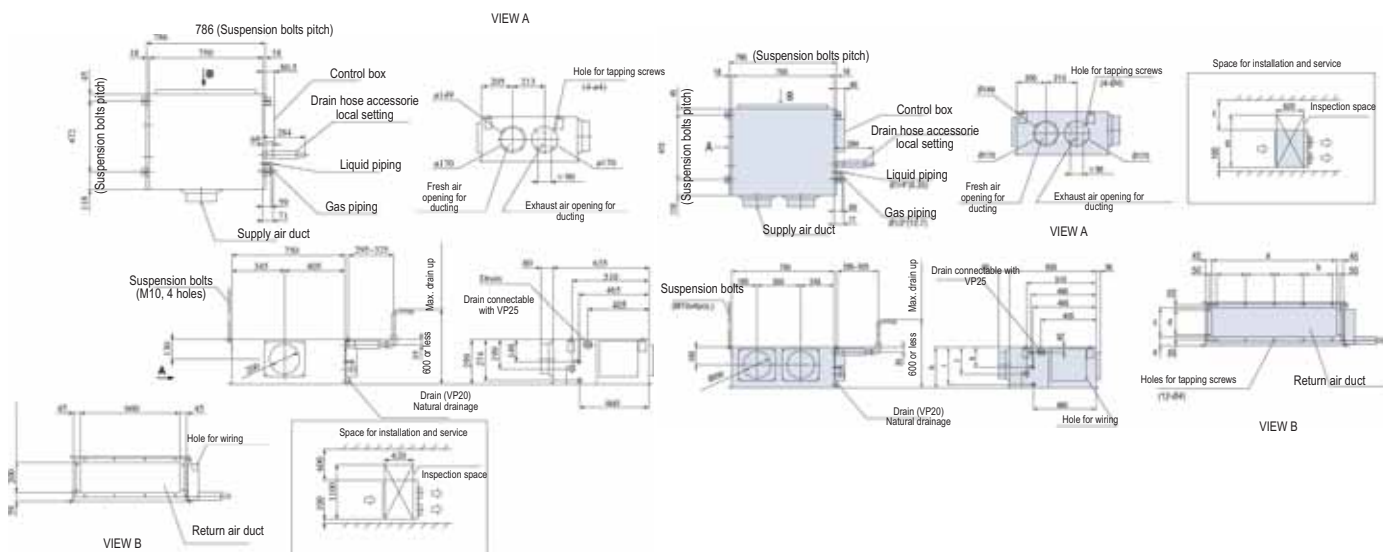
FDUMA28KXE5R 2.8kW
FDUMA36KXE5R 3.6kW
FDUMA45KXE5R 4.5kW
FDUMA56KXE5R 5.6kW



Measurements in mm

FDUMA22KXE5R

FDUMA36KXE5R, 45KXE5R, 56KXE5R



Calculation of the noise levels: 1.5 m from bottom and central part of the unit.

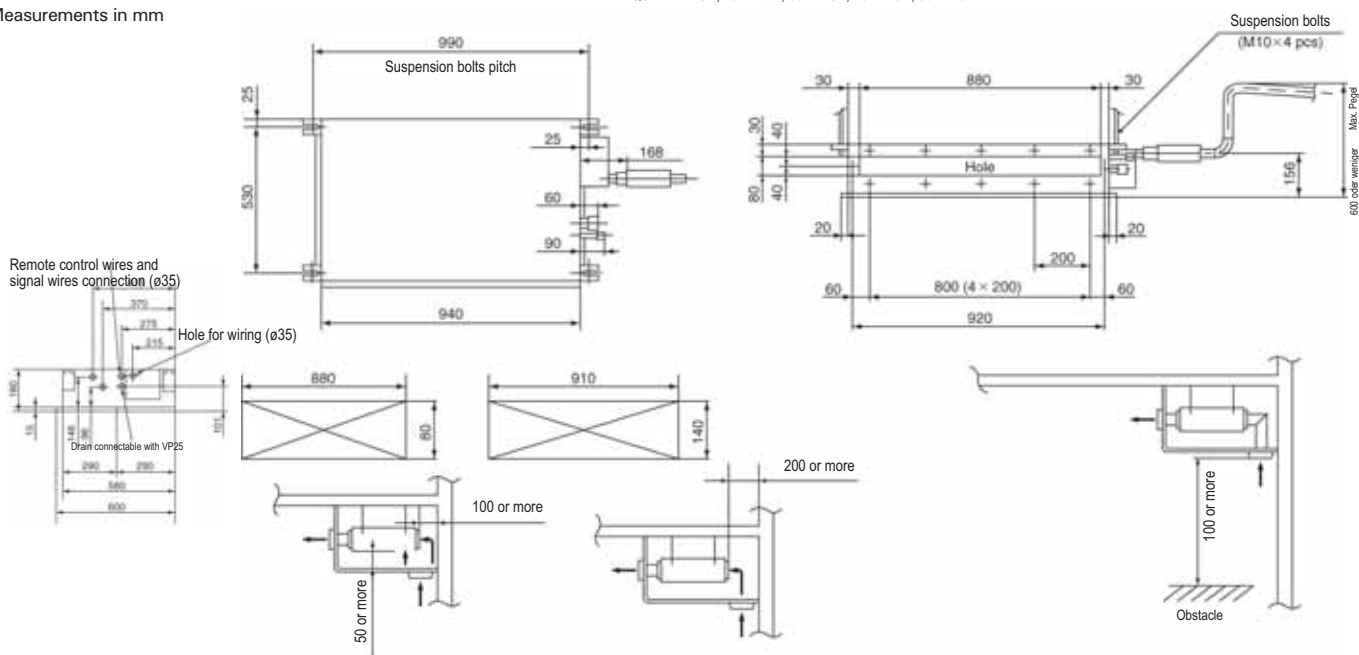
MODEL			FDUMA 22 KXE5R	FDUMA 28 KXE5R	FDUMA 36 KXE5R	FDUMA 45 KXE5R	FDUMA 56 KXE5R
Cooling capacity		kW	2,20	2,80	3,60	4,50	5,60
Heating capacity		kW	2,50	3,20	4,00	5,00	6,30
Power	Ph-V-Hz		1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ
DIMENSIONS							
Dimensions internal	height x width x depth	mm	299x750x635	299x750x635	299x750x635	299x750x635	299x750x635
panel	height x width x depth	mm	-	-	-	-	-
Weight internal		Kg	33	34	34	34	34
panel		Kg	-	-	-	-	-
AIR CONDITIONING							
Motor and quantity		W	40 x 1	50 x 1	50 x 1	55 x 1	55 x 1
Treated air (Hi/Med/Lo)		m³/h	600-540-480	720-660-600	720-660-600	840-720-660	840-720-660
Useful head (Hi speed)		Pa	85	85	85	85	85
Noise level (Hi/Lo) TQA - QRA		dB(A)	33-31-28	34-32-29	34-32-29	35-32-29	35-32-29
Fresh air inlet			-	-	-	-	-
Air filter and quantity			-	-	-	-	-
PIPING SPECIFICATIONS							
Pipe diameter	Liquid side	mm(in)	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")
	Gas side	mm(in)	ø12.7 (1/2")	ø12.7 (1/2")	ø12.7 (1/2")	ø12.7 (1/2")	ø12.7 (1/2")
CONTROL SYSTEMS							
ACCESSORY PARTS							
			Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain
OPTIONAL PARTS							
			UM-FL1E	UM-FL1E	UM-FL1E	UM-FL1E	UM-FL1E

FDQSA: ultra thin ducted

- FDQSA22KXE5R 2.2kW
FDQSA28KXE5R 2.8kW
FDQSA36KXE5R 3.6kW
FDQSA45KXE5R 4.5kW
FDQSA56KXE5R 5.6kW



FDQSA22KXF5R 28KXF5R 36KXF5R 45KXF5R 56KXF5R



MODEL			FDQSA 22 KXE5R	FDQSA 28 KXE5R	FDQSA 36 KXE5R	FDQSA 45 KXE5R	FDQSA 56 KXE5R
Cooling capacity		kW	2,20	2,80	3,60	4,50	5,60
Heating capacity		kW	2,50	3,20	4,00	5,00	6,00
Power	Ph-V-Hz		1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ	1-220~240V 50HZ
DIMENSIONS							
Dimensions internal	height x width x depth	mm	180x940x580	180x940x580	180x940x580	180x940x580	180x940x580
panel	height x width x depth	mm	-	-	-	-	-
Weight internal		Kg	27	27	28	28	28
panel		Kg	-	-	-	-	-
AIR CONDITIONING							
Motor and quantity		W	25 x 1	25 x 1	25 x 1	25 x 1	25 x 1
Treated air (Hi/Med/Lo)		m³/h	540-480-450	540	540	660-600-540	660-600~540
Useful head (Hi speed)		Pa	30	30	30	30	30
Noise level (Hi/Lo) TQA - QRA		dB(A)	37-35-33	37-35-33	37-35-33	37-35-33	37-35-33
Fresh air inlet			-	-	-	-	-
Air filter and quantity			-	-	-	-	-
PIPING SPECIFICATIONS							
Pipe diameter	Liquid side	mm(in)	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")
	Gas side	mm(in)	ø9.52 (3/8")	ø9.52 (3/8")	ø12.70 (1/2")	ø12.70 (1/2")	ø12.70 (1/2")
CONTROL SYSTEMS			RC-E1R-RCND-Ki-H ER (opt.)	RC-E1R-RCND-Ki-H ER (opt.)	RC-E1R-RCND-Ki-H ER (opt.)	RC-E1R-RCND-Ki-H ER (opt.)	RC-E1R-RCND-Ki-H ER (opt.)
ACCESSORY PARTS			Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain
OPTIONAL PARTS							

KX4/KXR4 - Indoor units

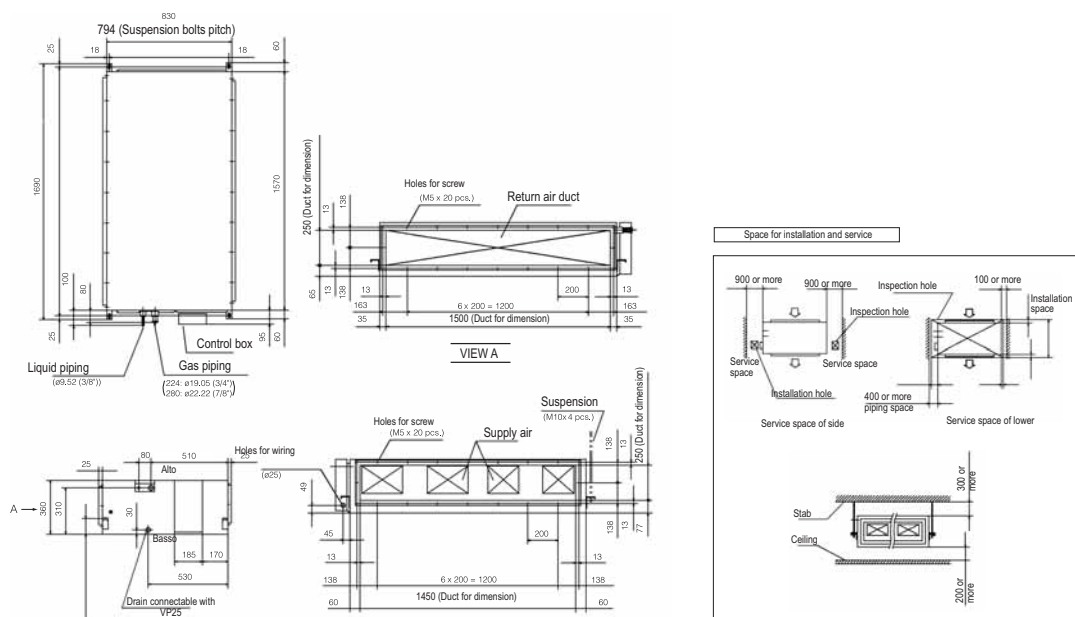
FDA: ducted high

- High static pressure ducted air conditioning unit, available in 2 power capacities (22.4 and 28.0 kW).
- Fans with heads up to 200 Pa.
- Ultra-compact design for easy installation in particularly low false-ceilings: only 36 cm high.

FDA224KXE4R 22.4kW
FDA280KXE4R 28.0kW



Measurements in mm



Calculation of the noise levels: 1.5 m from bottom and central part of the unit.

MODEL			FDA 224 KXE4R	FDA 280 KXE4R
Cooling capacity		kW	22,40	28,00
Heating capacity		kW	25,00	31,50
Power	Ph-V-Hz		1-220~240V 50HZ	1-220~240V 50HZ
DIMENSIONS				
Dimensions internal	height x width x depth	mm	360x1570x830	360x1570x830
panel	height x width x depth	mm	-	-
Weight internal		Kg	92	92
panel		Kg	-	-
AIR CONDITIONING				
Motor and quantity		W	200 x 2	230 x 1, 270 x 1
Treated air (Hi/Med/Lo)		m³/h	3060	4080
Useful head (Hi speed)		Pa	100-200	100-200
Noise level (Hi/Lo) TQA - QRA		dB(A)	48	49
Fresh air inlet			Possible	Possible
Air filter and quantity			to purchase apart	to purchase apart
PIPING SPECIFICATIONS				
Pipe diameter	Liquid side	mm(in)	ø9.52 (3/8")	ø9.52 (3/8")
	Gas side	mm(in)	ø19.05 (3/4")	ø22.22 (7/8")
CONTROL SYSTEMS				
			RC-E1R (opt.)	RC-E1R (opt.)
ACCESSORY PARTS				
			Mounting kit; Condensate drain	Mounting kit; Condensate drain
OPTIONAL PARTS				
			-	-

KX4/KXR4 - Indoor units

FDFLA/FDFUA: floor

- Floor mounted air conditioner, available for exposed or concealed application, with 3 - 4 power capacities (2.8-7.1 kW).
- Ultra-compact design: only 63 cm high and 22.5 cm deep.
- Maximum comfort, thanks to the wide and optimal airflow distribution.

FDFLA28KXE4R 2.8kW
FDFLA45KXE4R 4.5kW
FDFLA71KXE4R 7.1kW

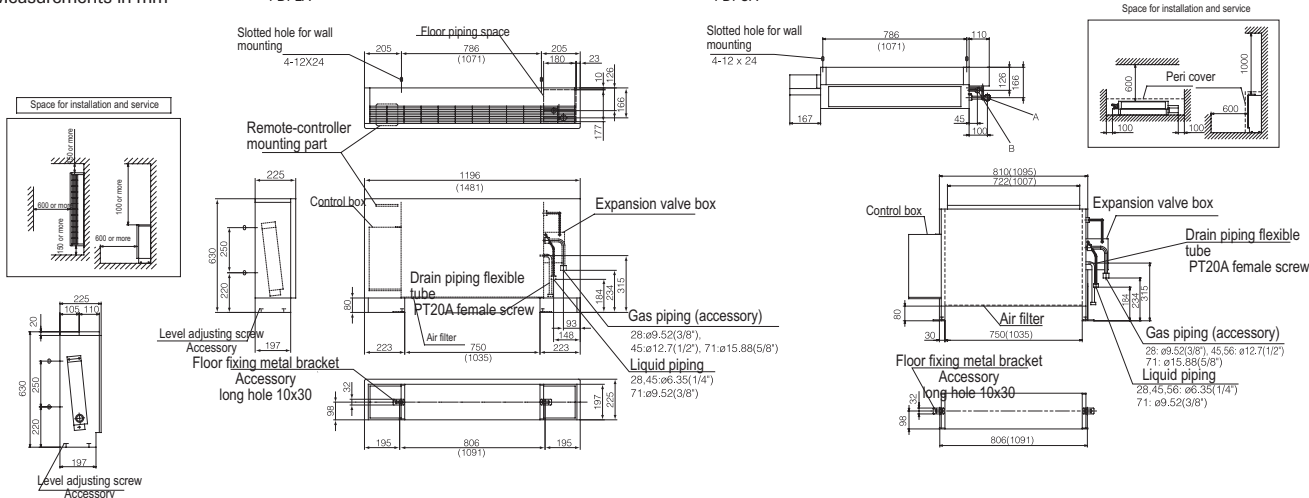
FDFUA28KXE4R 2.8kW
FDFUA45KXE4R 4.5kW
FDFUA56KXE4R 5.6kW
FDFUA71KXE4R 7.1kW



Measurements in mm

FDFLA Note: values in brackets refer to model 71.

FDFUA Note: values in brackets refer to model 71.



Calculation of the noise levels: 1 m from front part and central of the unit; 1 m in height from bottom part.

MODEL			FDFLA 28 KXE4R	FDFLA 45 KXE4R	FDFLA 71 KXE4R	FDFUA 28 KXE4R	FDFUA 45 KXE4R	FDFUA 56 KXE4R	FDFUA 71 KXE4R
Cooling capacity		kW	2,80	4,50	7,10	2,80	4,50	5,60	7,10
Heating capacity		kW	3,20	5,00	8,00	3,20	5,00	6,30	8,00
Power	Ph-V-Hz		1-220-240V 50HZ	1-220-240V 50HZ	1-220-240V 50HZ	1-220-240V 50HZ	1-220-240V 50HZ	1-220-240V 50HZ	1-220-240V 50HZ
DIMENSIONS									
Dimensions internal	height x width x depth	mm	630x1196x225	630x1196x225	630x1481x225	630x1077x225	630x1077x225	630x1077x225	630x1362x225
panel	height x width x depth	mm	-	-	-	-	-	-	-
Weight internal		Kg	32	32	40	25	25	25	32
panel		Kg	-	-	-	-	-	-	-
AIR CONDITIONING									
Motor and quantity		W	30 x 1	40 x 1	40 x 1	30 x 1	40 x 1	40 x 1	40 x 1
Treated air (Hi/Med/Lo)		m³/h	720-660-600	840-720-600	1080-900-720	720-660-660	840-720-600	840-720-600	1080-900-720
Useful head (Hi speed)		Pa	-	-	-	-	-	-	-
Noise level (Hi/Lo) TQA - QRA		dB(A)	41-38-36	43-41-40	43-41-40	41-38-36	43-41-40	43-41-40	43-41-40
Fresh air inlet			Not possible	Not possible	Not possible	Not possible	Not possible	Not possible	Not possible
Air filter and quantity			Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)	Polypropylene net x 2 (washable)
PIPING SPECIFICATIONS									
Pipe diameter	Liquid side	mm(in)	ø6.35 (1/4")	ø6.35 (1/4")	ø9.52 (3/8")	ø6.35 (1/4")	ø6.35 (1/4")	ø6.35 (1/4")	ø9.52 (3/8")
	Gas side	mm(in)	ø9.52 (3/8")	ø12.7 (1/2")	ø15.88 (5/8")	ø9.52 (3/8")	ø12.7 (1/2")	ø12.7 (1/2")	ø15.88 (5/8")
CONTROL SYSTEMS									
RC-E1R (opt.)			RC-E1R (opt.)	RC-E1R (opt.)	RC-E1R (opt.)	RC-E1R (opt.)	RC-E1R (opt.)	RC-E1R (opt.)	RC-E1R (opt.)
ACCESSORY PARTS									
Mounting kit Condensate drain			Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain	Mounting kit Condensate drain
OPTIONAL PARTS									
			-	-	-	-	-	-	-



MINI KX4





MINI KX4



5HP



6HP

The new Mitsubishi Heavy Industries Mini KX4 line is the most advanced solution for conditioning commercial spaces or large high-residential environments, where energy saving and installation versatility for the control of each single environment are essential requirements. Thanks to the use of the latest electronic technology, the system is suitable for applications that require either cooling or heating. It is highly efficient, flexible to programme and use, and offers the maximum reliability.

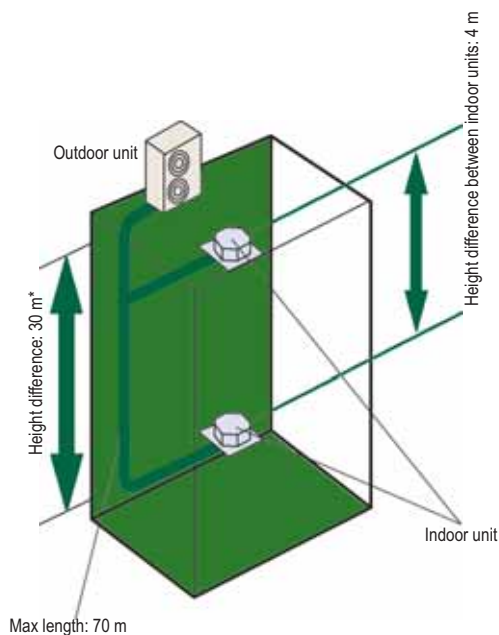
The vast range of indoor units makes the Mini KX4 line the best choice for meeting the most different requirements when creating a comfortable environment.

MINI KX4

MINI KX4 heat pump systems

The MINI KX4 heat pump 2-pipe system lets all the indoor units connected operate in cooling and heating mode, so it's the ideal solution for systems with requirements that range from conditioning a single flat (compact single-phase unit - 14.0kW), to multi-storey buildings, with particularly large open space areas.

The Mini KX4 system uses indoor units of the same type and power capacity as the KX4 and KXR4 systems.
Except models FDTA160KXE4R, FDKA71KXE5R, FDUA224KXE4R, FDUA280KXE4R.



5HP	6HP
FDCA140HKXEN4R / FDCA140HKXES4R	FDCA160HKXES4R

Branch piping set (opt.)	Total capacity of the indoor units downstream of the branch	
DIS-22-1	< 18 kW	
Header set (opt.)*	Max. branches	
HEAD4-22-1R	< 18 kW	4

Refrigerant piping parameters	
Total length	100 m or less
Farthest unit	70 or less
Ø 9.52 length of pipes on liquid side	50 or less
Height difference between units	
Indoor unit below - Outdoor unit above	30 m oder weniger
Indoor unit above - Outdoor unit above	15 oder weniger
Indoor Unit - Indoor Unit	4 oder weniger

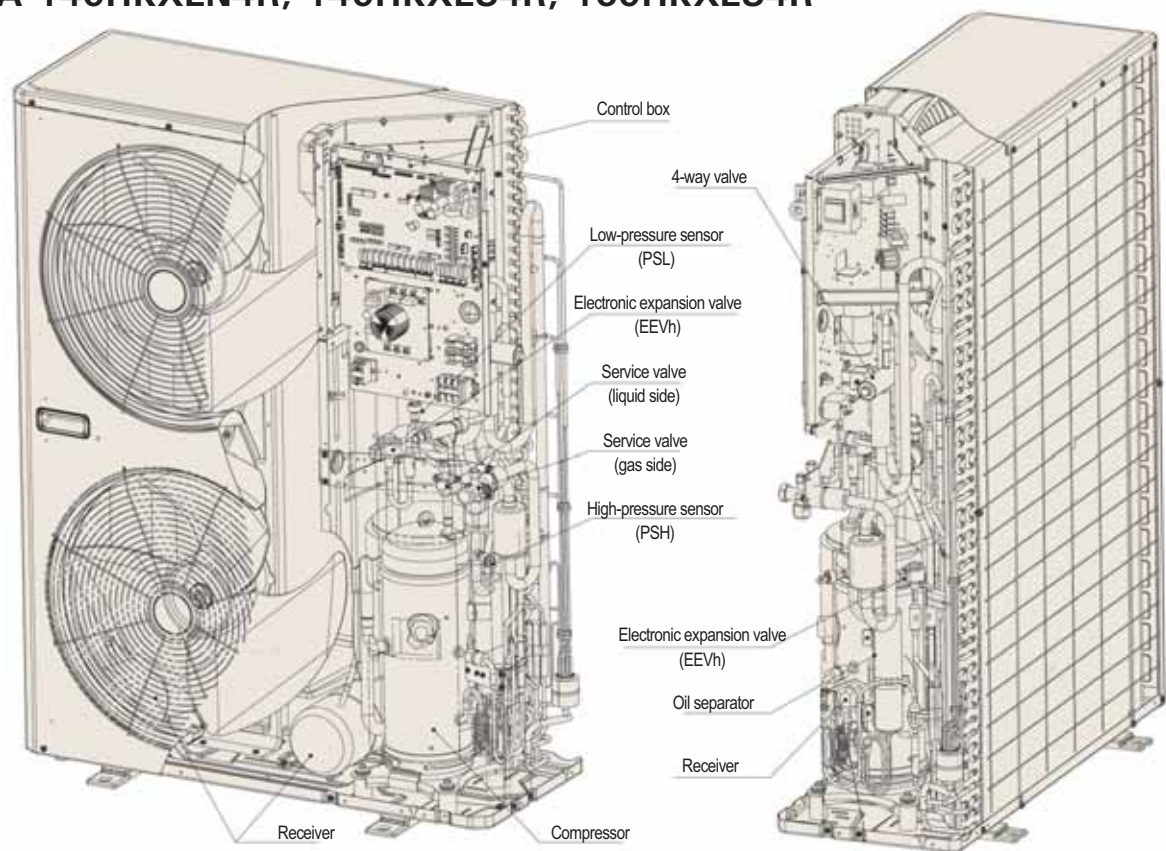
* When the outdoor unit is installed below the indoor unit, the height difference must be within 15 m.

Number of indoor units available for combinations

HP equivalent	5	6
Model	FDCA140HKXEN4R FDCA140HKXES4R	FDCA160HKXES4R
N. of connectable units	2-6 2-8	2-8

MODEL	4-way cassette FDTA	4-way cassette 60x60 FDTCA	2-way cassette FDTWA	1-way cassette FDTSA	1-way cassette Ducted 60x60 FDTQA

FDCA 140HKXEN4R, 140HKXES4R, 160HKXES4R



Low-pressure sensor: device that prevents refrigerant leaks.

Electronic expansion valve: with continuous adjustment which optimises the refrigerant flow and guarantees the pressure control and the expansion of the refrigerant flow on the basis of the different loads, both in the cooling and heating mode.

High-pressure sensor: device that protects the compressor from overloads or malfunctions in the refrigerant circuit.

Receiver: stores the refrigerant that isn't used during low demand periods, optimising the flow in the gas phase.

DC Inverter compressor: with variable speed control, so the output is always exactly proportional to the demand of the indoor units.

	High Wall FDKA	Ceiling FDEA	Ducted FDUMA	Ducted FDQSA	Floor exposed FDFLA	Floor concealed FDFUA
						

MINI KX4 heat pump systems

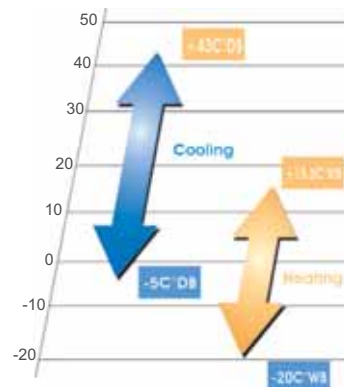
5-6HP (14.0-16.0kW)

FDCA140HKXEN4R 14.0kW

FDCA140HKXES4R 14.0kW

FDCA160HKXES4R 16.0kW

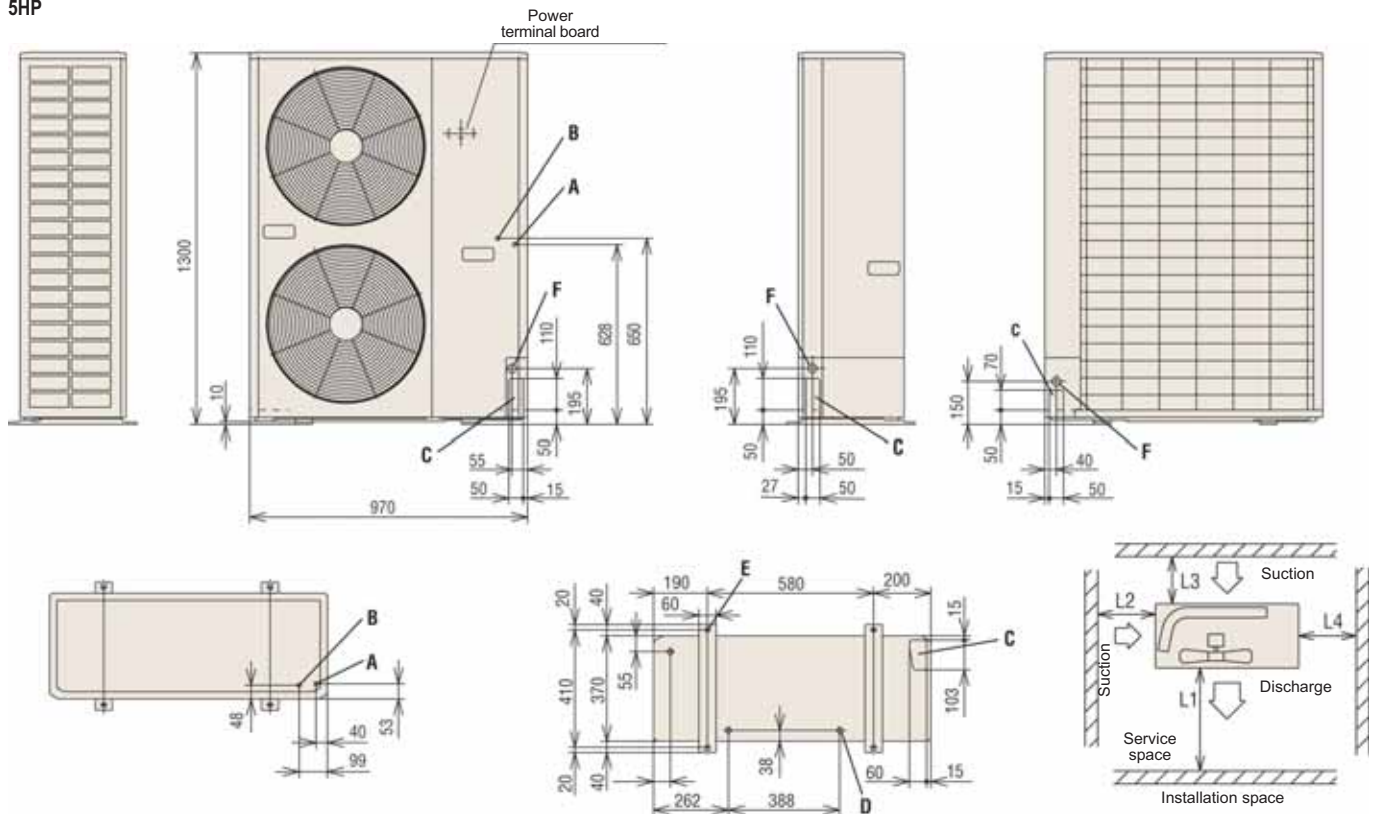
- The KX4 VRF heat pump 2-pipe system guarantees excellent performance for residential and small commercial installations.
- Extremely light and compact unit with an installation space of 0.36 m².
- Connects up to 6 indoor units/150% of the capacity; from 7 to 8 indoor units/130% of the capacity.
- Maximum efficiency, with COP values from 3.67 to 3.73 and EER values from 2.93 to 3.48.
- The total piping length reaches 100 m with the farthest indoor unit up to max. 70 m away.
- The unit has a refrigerant pre-charge for a maximum length of 100 m and doesn't need any refrigerant adding when installed.



Heating function with external temperatures down to -20°C (wet bulb)

MODEL		FDCA	140 HKXEN4R	140 HKXES4R	160 HKXES4R
Power source		HP	5	5	6
Cooling capacity		kW	14,60	14,60	16,00
Heating capacity		kW	16,60	16,60	18,00
ELECTRICAL DATA					
Power		Ph-V-Hz	1-220~240V-50HZ	3-380~415V-50HZ	3-380~415V-50HZ
Power absorption - cooling		kW	4,20	4,20	5,46
Power absorption - heating		kW	4,45	4,45	4,90
EER			3,48	3,48	2,93
COP			3,73	3,73	3,67
Current - cooling		A	21,2~19,4	6,87~6,29	8,91~8,17
Current - heating		A	22,5~20,6	7,27~6,64	8,00~7,33
DIMENSIONS					
External dimensions	Height x Width x Depth	mm	1300x970x370	1300x970x370	1300x970x370
Net weight		Kg	125	125	125
REFRIGERATION CIRCUIT					
Refrigerant			R410A	R410A	R410A
Refrigerant pre-charge		Kg	7,5	7,5	7,5
Heat exchanger			Internally finned and grooved tubes	Internally finned and grooved tubes	Internally finned and grooved tubes
Refrigerant control			Electronic expansion valve	Electronic expansion valve	Electronic expansion valve
AIR CONDITIONING					
Type and quantity			Axial fan x 2	Axial fan x 2	Axial fan x 2
Motor		W	60 x 2	60 x 2	60 x 2
Airflow and head		m ³ /min (Pa)	100 (0)	100 (0)	100 (0)
Max. noise level		dB(A)	53	53	53
PIPE SPECIFICATIONS					
Pipe diameter	Liquid line	mm (in)	ø9.52 (3/8")	ø9.52 (3/8")	ø9.52 (3/8")
	Discharge gas line	mm (in)	-	-	-
	Suction gas line	mm (in)	ø15.88 (5/8")	ø15.88 (5/8")	ø15.88 (5/8")
Connection method			(flare)	(flare)	(flare)
Capacity control		%	3~130	3~130	25~125
N. of connectable I.U.			2-6	2-8	2-8

5HP



Rif.	Item	
A	Gas side piping connection	Ø15.88 (flare)
B	Liquid side piping connection	Ø9.52 (flare)
C	Outlet for electrical wiring and refrigerant piping	
D	Drain holes	Ø20, 3 holes
E	Holes for anchor bolts	M10, 4 holes
F	Outlet for electrical wiring	Ø30, 3 holes

Dimensions	Installation example		
	1	2	3
L1	Open	Open	500
L2	300	5	Open
L3	100	300	150
L4	5	5	5

- (1) There must be no obstacles all around the unit.
- (2) Fix the unit with the anchor bolts.
- (3) Position the unit so the discharge port is at a right angle to the prevailing wind direction.
- (4) Leave at least 1m free space above the unit.
- (5) If there are obstacles in front of the unit, these must be lower than the unit.
- (6) The decal with the installation data shall be positioned under the front panel (right side).

For the electrical connections and the connections of the refrigerant pipes for the Mini KX4 system, refer to the same sections of the KX4 system on pages 22-23.

All measurements in mm.

MEMO

Handwriting practice area with horizontal dashed lines.



All Mitsubishi Heavy Industries products have ISO 9001 e 14001 and are part of the Eurovent certification program.



CE mark makes the products accessible on the European market.

Due to the continuous technological evolution of products, we reserve the right to vary the technical specifications without prior warning at any time.



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MICRO KX

VRF Inverter Multi Systems

2009

MICRO KX

Advanced air conditioning technology

Research and technological innovation have been the goals of Mitsubishi Heavy Industries for over a century and these have been translated into the excellent results obtained in the air conditioning market.

The perfect harmony between energy, technology and innovation is manifested in the production of air conditioners designed to meet the engineering requirements of the residential, commercial and industrial sectors.

State-of-the-art solutions applied to top quality products guarantee comfort, energy efficiency, and quality of life.

For a better tomorrow.

Mitsubishi Heavy Industries Ltd is the founder of the Mitsubishi Group, one of the major industrial and financial empires in the world, with a network of as many as **131 industries**.

Today Mitsubishi Heavy Industries **is a market leader** in various sectors of traditional industry, but it is also one of the major players in innovative technological sectors such as aviation, **aerospace**, **robotics**, and **renewable energy**.

Profile	1-3
Advantages	4-5
MICRO KX	6-9
Compact dimensions	
Design flexibility	
High efficiency	
MICRO KX	10-26
Outdoor units	
Indoor units	
Control Systems	27-32
Central controllers	
Superlink II	



The global activity of **Mitsubishi Heavy Industries, Ltd.**

The origin of the brand dates back to the last decade of the nineteenth century in Nagasaki, where the first big shipyard was established to produce ships for the Japanese navy. Shipbuilding is still one of the most important sectors for Mitsubishi Heavy Industries. Subsequently Mitsubishi implemented a progressive diversification and extension of its activity in heavy industry, as well as in the airplane, rail and car sectors, becoming the biggest private company in Japan in the 1930's. Mitsubishi Heavy Industries still operates in the car sector through its subsidiary company Mitsubishi Motors.

In the post-war period there was a organised process of corporate downsizing by American industry for the protection of the same.

The competitor Mitsubishi Electric was set up in 1921 as one of these spin offs, producing a limited number of products (electrical engines for boats and fans) and keeping the three-pointed diamond as its logo, just like the parent company.

The current need for alternative energy resources in fact, sees Mitsubishi Heavy Industries constantly committed to searching for state-of-the-art solutions that can preserve the delicate balance of the ecosystem both today and in the future

The advent of the third millennium saw Mitsubishi Heavy Industries venture into sectors of the greatest importance for the future of the planet, amongst which are research into alternative energy sources and space exploration, with a constant commitment to guarantee development whilst keeping man and technology in perfect harmony.

Resources/Energy

- Crude Oil Storage Barges
- LNG Tanks
- Boilers & Turbines
- Oil Production Plants
- Thermal Power Plants
- Combined Cycle Plants
- Fuel Cells
- Water Turbines
- Wind Turbines
- Geothermal Power Plants
- PWR Nuclear Power Plants
- Uranium Enrichment Equipment
- Co-Generation Systems



Environment

- Ultra-High Steel Stacks
- Refuse Incineration Plants
- Night Soil Treatment Plants
- Fluidized Incinerators
- CFC Collecting Equipment



Transportation

- Unloader & Container Cranes
- Mechanical Parking Facilities
- Integrated Automated Storage Systems
- Rubber & Tyre Manufacturing Plant
- Skyrails
- Monorail Cars
- New Transportation Systems
- Passenger Boarding Bridges
- Toll Collection Machine Systems
- Forklift Trucks
- Helicopters
- Aircraft
- Railway Maintenance Equipment
- LNG Carriers
- Container Ships



Local development

- Spillway Radial Gates
- Steel Bridges
- Penstocks
- Desalination Plants
- Logistics and Transportation
- Turbines
- Cabling Systems



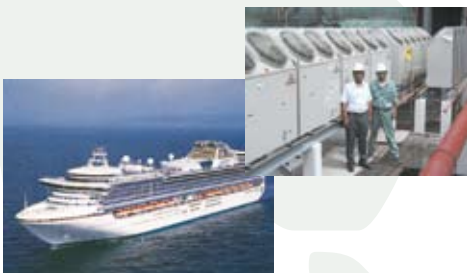
Research and development

- Oceanographic research ships
- Deepsea research vehicles
- Communication satellites and rockets
- Space transportation
- Rockets and engines



Comfort

- Air conditioners for residential and commercial applications
- Automotive air conditioners
- Refrigeration units
- Dry cleaning machines
- Equipment for the food industry
- Cruise ships
- Multipurpose domes



Industry

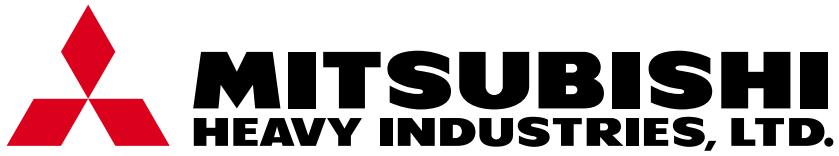
- Chemical Plants
- Wind Tunnels/Test Rigs
- Casting and Foundry Equipment
- Strip Mills
- Cement Plant
- Industrial Robots
- Injection Moulding Machines
- Pulp & Paper Machinery
- Production of Corrugated Packaging
- Box Making Machines
- Machine Tools



Defence

- Submarines
- Naval vessels
- Jet fighters
- Helicopters
- Missiles

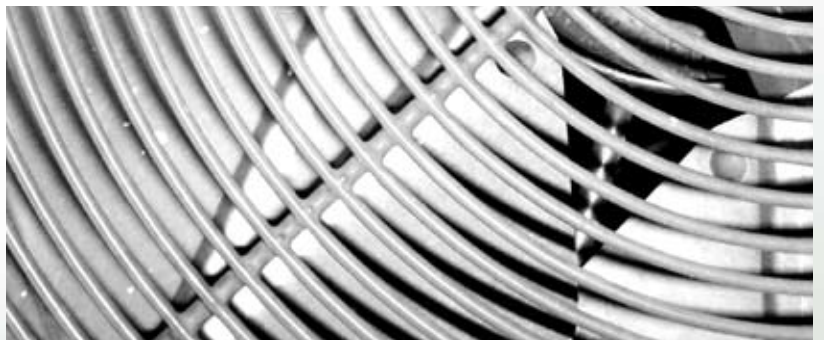




MICRO KX redefines our expectations



Comfort, Energy Efficiency,



8~12HP



KX6

4~6HP



The **Micro KX6 series** is the result of the industry leading design from **Mitsubishi Heavy Industries** offering a solution for the air conditioning of residential and commercial applications wherever **energy efficiency, comfort and reliability** are fundamental requirements.

Care for the **Environment**



Micro KX

The new **Micro KX Series** represents the excellent result of years of research and development by **Mitsubishi Heavy Industries** in the field of residential and commercial air conditioning. After more than **80 years of experience** in refrigeration design, Mitsubishi Heavy Industries have developed a product which has attained the highest levels of **energy efficiency** and **reliability** of operation.



High efficiency



Flexibility of installation



Simplified installation



Easy maintenance

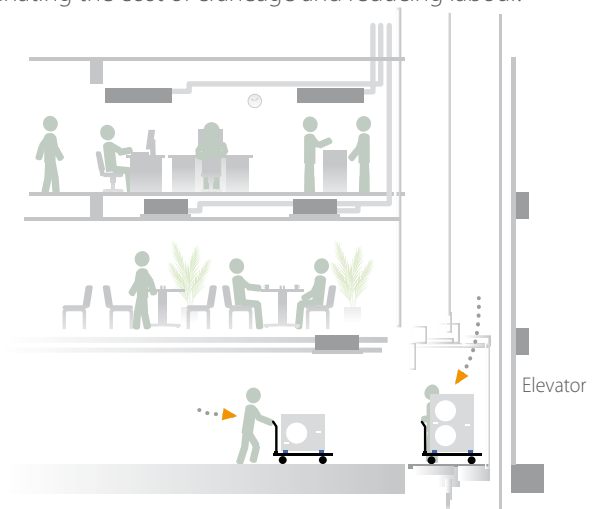
High Efficiency (COP)

The high energy efficiency of the system guarantees low operating costs and low environmental impact.



Transportation and Installation

Due to the significant reduction in dimensions and footprint, with one of the most compact units on the market, the Micro KX can be transported in a six person elevator (Width 1400 mm, Depth 850 mm, Door opening 850 mm), eliminating the cost of craneage and reducing labour.



Ultra-compact Design

Volume reduction

35%

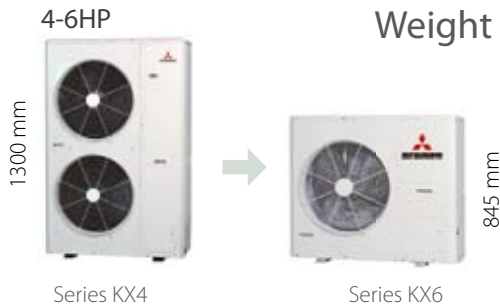
Weight reduction

34%

The most compact VRF System on the market.

The significant reduction in weight and dimensions of the **new Micro KX** outdoor units is achieved through the use of **single and twin fans** with horizontal discharge.

Through advanced research and development, the main internal components have also been redimensioned, whilst **improving the energy performance and reliability of the system.**



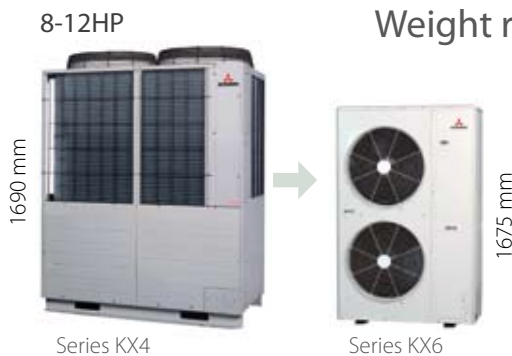
The new 4-6 HP outdoor units are characterised by a significant weight reduction (from 125 kg to 82 kg) and reduced footprint.

Volume reduction

47%

Weight reduction

10%



The new 8-12HP outdoor units are characterised by a significant weight reduction (from 245 kg to 221 kg) and reduced footprint.

Compact high efficiency heat exchanger

- Optimisation of the relationship between air flow and fin design.
- Improved air distribution.
- Maximisation of the efficiency of the heat exchanger.
- New treatment of the condenser fins (KS101) for improved corrosion resistance even in aggressive environments.



KX4

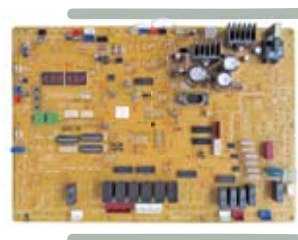


KX6

Compact integrated PCB

- Reduction in the dimensions of the control enclosure.
- PCB dimensions reduced by 50%
 - Control PCB changed from single sided board to double sided board;
 - Inverter PCB with reduced power transistor size.
- New Superlink II network

-50%



KX4



KX6

Design flexibility

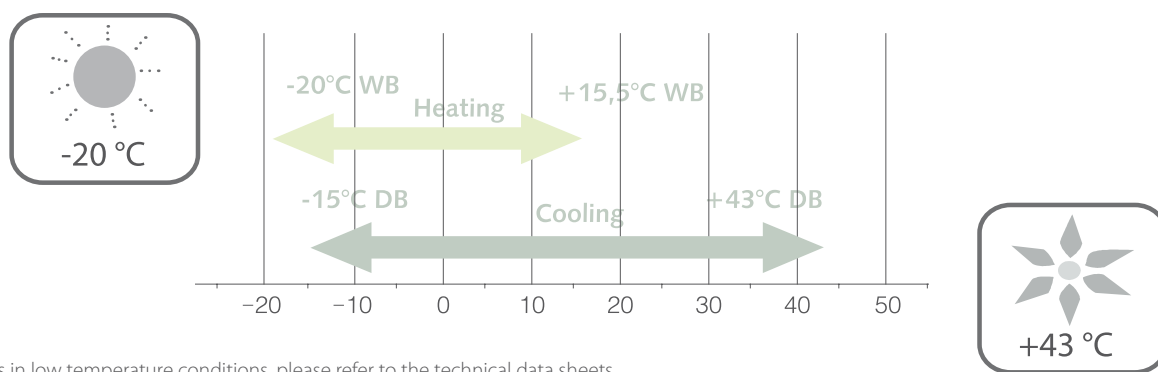
Up to 22 indoor units connection capacity

The technically advanced design of the Micro KX permits the connection capacity of the indoor units to be increased to 150% of the outdoor unit capacity, up from the 130% of the previous models (KX4).

	4 HP	5 HP	6 HP	8 HP	10 HP	12 HP
kW	11,2	14,0	15,5	22,4	28,0	33,5
Number of indoor units connectable	1-6	1-8	1-8	1-15	1-19	1-22
Power of indoor units connectable	80% - 150%			50% - 150%		

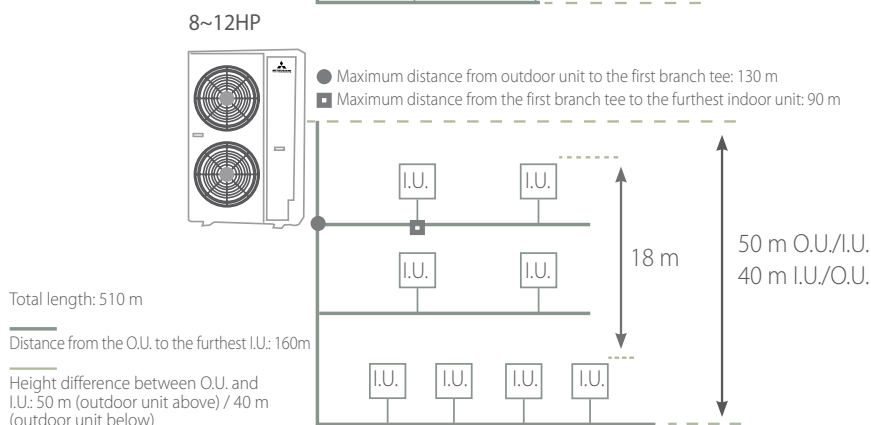
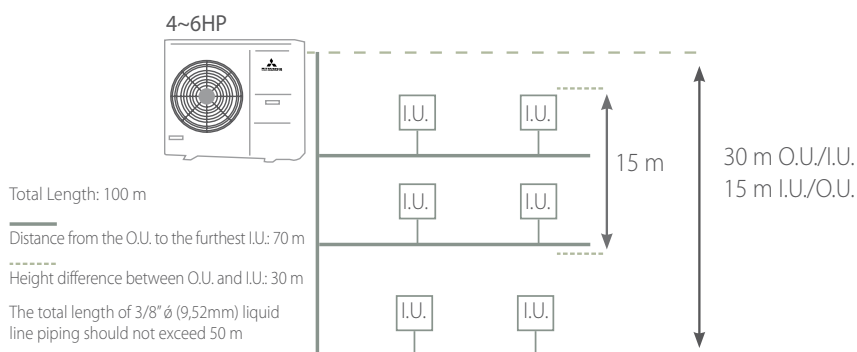
Range of Operation

MICRO KX series permits system design for heating operation at low temperature conditions down to -20 °C from -15 °C of the previous model and cooling operation at temperatures down to -15 °C from -5 °C of the previous model.



*For the capacities in low temperature conditions, please refer to the technical data sheets

Long piping length



The increase in pipe lengths also permits an increase in the permissible height difference between indoor units to 15 m for the 4 to 6 HP models, and to 50 m for the 8 to 12 HP models.

High efficiency through the application of:

Twin Rotary Compressor (4-6HP)

2D scroll Compressor (8-10HP)

3D scroll Compressor (12HP)

Compact Heat Exchanger

Vector Inverter Control

DC Fan Motor

High energy efficiency

New Inverter Control (Vector)

The new inverter control applies the latest developments in vector control to attain high efficiency.

- Smooth operation from low to high speed.
- Smooth Sine Wave voltage is achieved.
- Improved energy efficiency even at low rotational speeds.

Optimum Refrigerant System Control

The refrigerant circuit has been improved:

- optimisation of the refrigerant distribution in the heat exchanger;
- advanced refrigerant liquid return protection control system;
- high speed control by the new Superlink II network.

DC Fan Motor

The DC fan motor enables operation at excellent efficiency levels, approximately 60% higher than previous models.



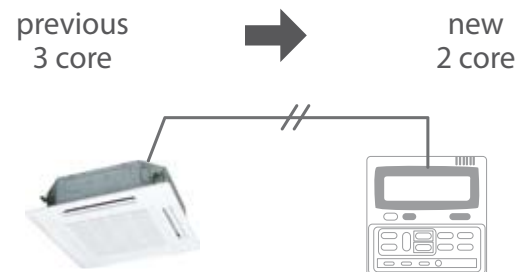
New design airflow

The new design of the impeller and optimised combination with the fan motor results in the same airflow volumes of the previous model with a substantial reduction in the energy required.



New Remote Control

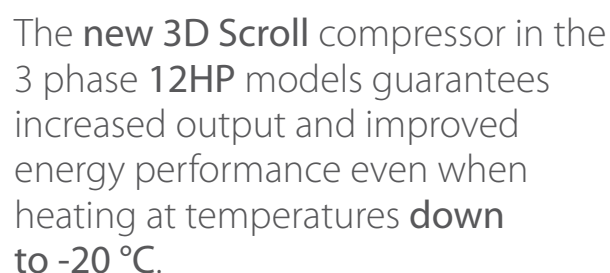
The new remote control system utilises nonpolar 2-core wiring for simple and convenient installation and facilitates rewiring and modifications.



Max length of electrical wiring

The wiring must be a 2-core shielded cable size 0.75 mm² to 1.25 mm².

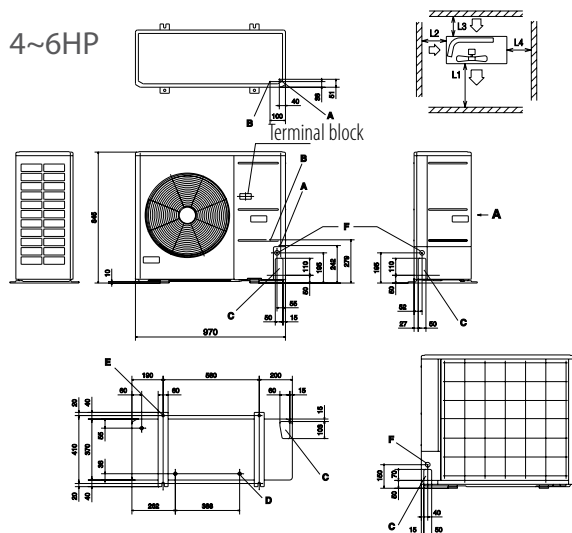
The max length of 2-core can be 1500 m from 1000 m of previous models.



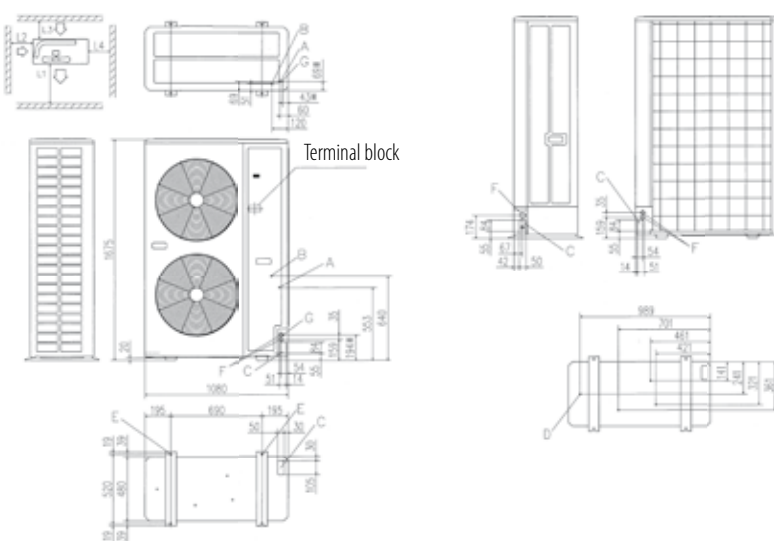
Model		FDC 112 KXEN6	FDC 140 KXEN6	FDC 155 KXEN6	FDC 112 KXE56	FDC 140 KXE56
Power Supply		1 Phase 220~240V 50Hz, 220V 60Hz			3 Phase 380~415 50Hz, 380V 60Hz	
Nominal cooling capacity	kW	11,2	14,0	15,5	11,2	14,0
Nominal heating capacity	kW	12,5	16,0	16,3	12,5	16,0
Starting current (max)	A	5				
Power consumption (cooling)	kW	2,80	4,17	4,71	2,80	4,17
Power consumption (heating)	kW	2,89	4,31	4,38	2,89	4,31
Running current (cooling)	A	13,5/12,4	20,6/18,9	23,3/21,3	4,5/4,1	6,9/6,3
Running current (heating)	A	14,1/12,9	21,5/19,7	21,9/20,1	4,7/4,3	7,2/6,6
Sound pressure level	dB(A)	52/54	53/55	53/56	52/54	53/55
External dimensions (H x W X D)	mm	845 x 970 x 370				
Net weight	kg	82				
Compressor motor	kW	1,9	2,9	3,2	1,9	2,9
Capacity control range	%	29~113	22~110	21~101	29~113	22~112
Crankcase heater	W	20				
Heat exchanger		Straight fins and inner grooved tubing				
Refrigerant		R410A				
Ref. amount pre-charged	kg	5,0				
Refrogerant piping size	in (mm)	Liquid line: ø 3/8" (9,52)				
		Gas line: ø 5/8" (15,88)				

Dimensions

4~6HP



8~12HP



A	Service valve connection (gas side)	ø 5/8" (15,88) (flare)
B	Service valve connection (liquid line)	ø 3/8" (9,52) (flare)
C	Pipe/cable draw-out port	4 places
D	Drain discharge port	ø 20 x 3 places
E	Anchor bolt hole	M10 x 4 places
F	Cable draw-out port	ø 30 x 3 places

		FDC224KXE6	FDC280KXE6	FDC335KXE6
A	Service valve connection (gas side)	ø 3/4" (19,05)	ø 3/4" (19,05)	ø 3/4" (19,05)
B	Service valve connection (liq. line)	ø 3/8" (9,52)	ø 3/8" (9,52)	ø 1/2" (12,7)
D	Drain discharge hole	ø 20 x 4 places	ø 20 x 4 places	ø 20 x 4 places
E	Anchor bolt hole	M10 x 4 places	M10 x 4 places	M10 x 4 places
F	Cable draw-out hole	ø 30 x 2 places (front) ø 45 (side) ø 30 x 2 places (back)	ø 30 x 2 places (front) ø 45 (side) ø 30 x 2 places (back)	ø 30 x 2 places (front) ø 45 (side) ø 30 x 2 places (back)

dimensions	Installation example		
	1	2	3
L1	open	open	500
L2	300	5	open
L3	150	300	150
L4	5	5	5

dimensions	Installation example		
	1	2	3
L1	open	open	1500
L2	300	5	open
L3	300	300	300
L4	5	5	5

FDC 155 KXE6

FDC 224 KXE6

FDC 280 KXE6

FDC 335 KXE6

3 Phase 380~415 50Hz, 380V 60Hz

15,5	22,4	28,0	33,5
16,3	25,0	31,5	37,5
5			
4,71	5,60	8,09	9,82
4,38	6,03	8,21	10,12
7,8/7,1	9,25/8,47	13,22/12,10	15,87/14,53
7,3/6,7	9,85/9,02	13,41/12,28	16,36/14,98
53/56	58/58	59/60	61/61
845 x 970 x 370	1675 x 1080 x 480		
82	221		224
3,2	3,81	5,22	7,25
21~109	27~114	20~115	21~119
20	33		
Straight fins and inner grooved tubing			
R410A			
5,0	11,5		
Liquid line: ø 3/8"(9,52)	Liquid line: ø 3/8"(9,52)		Liquid line: ø 1/4"(12,7)
Gas line: ø 5/8"(15,88)	Gas line: ø 3/4"(19,05)	Gas line: ø 7/8"(22,22)	Gas line: ø 1"(25,4)

Note (4~6HP, 8~12HP):

1. The unit must not be surrounded by walls on all four sides
2. The unit must be fixed with anchor bolts.
3. Where the unit is exposed to strong winds, the unit should be installed with the air discharge at 90° to the prevailing wind direction.
4. At least one metre unobstructed space should be left above the unit.
5. If the unit is installed with an obstruction in front of the blower outlet, the height of the obstruction should not exceed the height of the unit.
6. The unit name plate is located on the lower right hand corner of the front panel.

Indoor units



4-way Cassette 84x84

2-way Cassette

1-way Cassette
Compact 60x60

4-way Cassette 60x60

1-way Cassette

Duct connected
High Static Pressure

2,2 kW (0.8HP)		FDTC 22 KXE6A			FDTQ 22 KXE6	
2,8 kW (1HP)	FDT 28 KXE6A	FDTC 28 KXE6A	FDTW 28 KXE6		FDTQ 28 KXE6	
3,6 kW (1.25HP)	FDT 36 KXE6A	FDTC 36 KXE6A			FDTQ 36 KXE6	
4,5 kW (1.6HP)	FDT 45 KXE6A	FDTC 45 KXE6A	FDTW 45 KXE6	FDTS 45 KXE6		
5,6 kW (2HP)	FDT 56 KXE6A	FDTC 56 KXE6A	FDTW 56 KXE6			
7,1 kW (2.5HP)	FDT 71 KXE6A		FDTW 71 KXE6	FDTS 71 KXE6		FDU 71 KXE6
9,0 kW (3.2HP)	FDT 90 KXE6A		FDTW 90 KXE6			FDU 90 KXE6
11,0 kW (4HP)	FDT 112 KXE6A		FDTW 112 KXE6			FDU 112 KXE6
14,0 kW (5HP)	FDT 140 KXE6A		FDTW 140 KXE6			FDU 140 KXE6
16,0 kW (6HP)	FDT 160 KXE6A					
22,4 kW (8HP)						FDU 224 KXE6
28,0 kW (10HP)						FDU 280 KXE6



Jet air scroll Ventilation (FDK models)

The jet air scroll system allows high volume air flow with minimum energy consumption, through the drastic reduction of air pockets. The airflow is uniform, silent, with increased throw, and particularly suitable for large air-conditioned spaces.



New design of the air louvres (FDT models)

The 4 directions of air flow can be controlled by the individual flap control. Due to optimization of the flap design, a better air flow diffusion through the space is guaranteed.



Air quality (FDT and FDTC models)

The airflow is distributed in a uniform and optimal way throughout the whole volume of the space, guaranteeing a significant reduction noise and also in the amassing of dust on the panel and ceiling.



High efficiency

The increase of the air flow outlet area allows a reduction in pressure loss of the air flow in the indoor unit. The fan motor power requirement is decreased and efficiency is increased. The application of DC fan motors achieves one of the highest energy efficiencies.

A large range of different indoor units in a variety of models and power ratings, with effective solutions to meet various installation requirements. Indoor units can be chosen from amongst 14 different models and different power capacities, for a total of 72 models, with state-of-the-art technological content and compact design. This wide range makes it possible to install air-conditioning systems in offices, public and commercial buildings, hotels and anywhere else where there is a particular request for great flexibility in use.



Duct connected
Medium Static Pressure



Duct connected
Compact



Wall Mounted



Floor Standing
exposed



Duct concealed



Outdoor Air
Processing unit



Ceiling Suspended

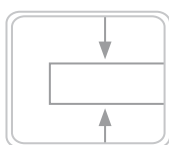


Floor Standing
concealed



FDUM 22 KXE6	FDQS 22 KXE6	FDUH 22 KXE6		FDK 22 KXE6			
FDUM 28 KXE6	FDQS 28 KXE6	FDUH 28 KXE6		FDK 28 KXE6		FDFL 28 KXE6	FDFU 28 KXE6
FDUM 36 KXE6	FDQS 36 KXE6	FDUH 36 KXE6		FDK 36 KXE6	FDE 36 KXE6A		
FDUM 45 KXE6	FDQS 45 KXE6			FDK 45 KXE6	FDE 45 KXE6A	FDFL 45 KXE6	FDFU 45 KXE6
FDUM 56 KXE6	FDQS 56 KXE6			FDK 56 KXE6	FDE 56 KXE6A		FDFU 56 KXE6
FDUM 71 KXE6				FDK 71 KXE6	FDE 71 KXE6A	FDFL 71 KXE6	FDFU 71 KXE6
FDUM 90 KXE6			FDU 500 FKXE6				
FDUM 112 KXE6					FDE 112 KXE6A		
FDUM 140 KXE6			FDU 850 FKXE6		FDE 140 KXE6A		
			FDU 1300 FKXE6				
			FDU 1800 FKXE6				

Model FDUH



compact design

The **FDUH ducted unit** is an excellent product ideal for installation in specific locations due to its compact dimensions, with only 27 cm height, and its low operating noise levels, 27 dB(A). It is ideally suited for applications in hotels, hospitals, and small offices.



Model FDU-F

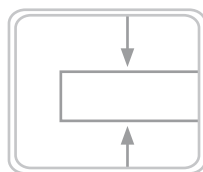
The **full fresh air ducted unit FDU-F** provides a 100% fresh air supply from the exterior to the conditioned space, with cooling or heating of the intake air, depending on the season. This unit is ideally suited for fresh air intake in applications with high occupancy, guaranteeing a comfortable environment with a controlled temperature.



Remote temperature sensor SC-THB-E3

This option can be installed at the time of installation or after the unit has already been installed. The remote temperature sensor can be located in the most appropriate position for monitoring the internal temperature, unlike previous models where the temperature sensor position was fixed. The sensor can be selected from the wired remote control.

FDT - 4 Way Cassette 84 x 84



compact design

24,6 cm (2,8~7,1 kW)
29,8 cm (9,0~16,0 kW)



9 capacities (2,8~16,0 kW)

Ideal for installation in commercial applications: the cassette is completely concealed with the false ceiling installation

Optional wireless remote control kit RCN-T-36W-E with corner mounted receiver

Detachable covers at the four corners for easier installation.

Easy checking of condensate drain pan condition

New design of the heat exchanger - reduced from 2 components to a single component - results in decrease in the unit height

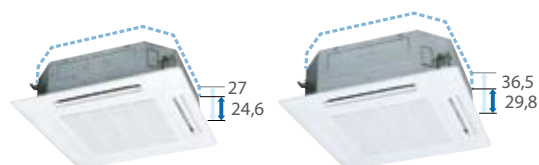


Individual flap control system



Due to optimization of the outlet design of air flow, the correct air flow is guaranteed with better diffusion through the space.

Low Profile design

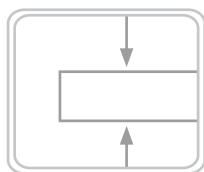


Height reduction from 27 to 24,6 cm and from 36,5 to 29,8 cm.



Model		FDT28KXE6A	FDT36KXE6A	FDT45KXE6A	FDT56KXE6A	FDT71KXE6A	FDT90KXE6A	FDT112KXE6A	FDT140KXE6A	FDT160KXE6A
Nominal cooling capacity	kW	2,8	3,6	4,5	5,6	7,1	9,0	11,2	14,0	16,0
Nominal heating capacity	kW	3,2	4,0	5,0	6,3	8,0	10,0	12,5	16,0	18,0
Power supply		1 Phase 220~240V, 50Hz/220V, 60Hz								
Power cons. (cooling)	kW	0,03-0,03			0,04-0,04	0,10-0,10	0,14-0,14			
Power cons. (heating)	kW	0,03-0,03			0,04-0,04	0,10-0,10	0,14-0,14			
Sound pressure level	dB(A)	Hi 33 Me 31 Lo 30					Hi 40 Me 37 Lo 35		Hi 42 Me 40 Lo 37	Hi 43 Me 41 Lo 38
External dimensions (H x W x D)	mm	unit 246x840x840 panel 35x950x950					unit 298x840x840 pannello 35x950x950			
Net weight	kg	unit 22 panel 5,5			unit 24 panel 5,5		unit 27 panel 5,5			
Air flow (standard)	CMM	Hi 18 Me 16 Lo 14					Hi 27 Me 24 Lo 20		Hi 30 Me 27 Lo 33	
Fresh air intake		Possible								
Panel		T-PSA-36W-E								
Air filter Type and Q'ty		Washable plastic mesh x 1								
Remote Control		Wired remote control RC-E3, RCH-E3; RCN-T-36W-E Kit Wireless								
Refrigerant piping size	mm (in)	Liquid line 6,35 (1/4") Gas line 9,52 (3/8")	Liquid line 6,35 (1/4") Gas line 12,7 (1/2")			Liquid line 9,52 (3/8") Gas line 15,88 (5/8")				

FDTC - 4 Way Cassette 60 x 60



compact design

24,8 cm



5 capacities (2,2~5,6 kW)

Ideal for installation in modular soffit ceilings

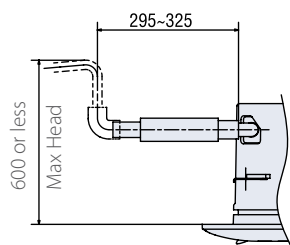
Ultra slim design with only 24,8 cm height

Optional RCN-TC-24W-ER wireless remote control kit with corner mounted receiver

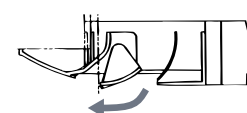
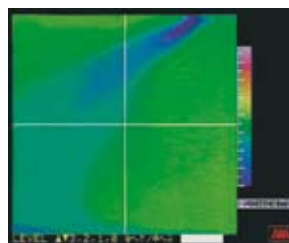
Detachable covers at the four corners for easier installation

Standard condensate drain pump

Condensate drain pump included as standard



Air Flow

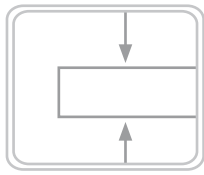


New shape and louvre design redirects the air flow away from the ceiling, to reduce ceiling stains.



Model		FDTC22KXE6A	FDTC28KXE6A	FDTC36KXE6A	FDTC45KXE6A	FDTC56KXE6A
Nominal cooling capacity	kW	2,2	2,8	3,6	4,5	5,6
Nominal heating capacity	kW	2,5	3,2	4,0	5,0	6,3
Power supply		1 Phase 220~240V, 50Hz/220V, 60Hz				
Power cons. (cooling)	kW	0,03-0,03			0,04-0,04	
Power cons. (heating)	kW	0,03-0,03			0,04-0,04	
Sound pressure level	dB(A)	Hi 35 Me 33 Lo 32		Hi 38 Me 36 Lo 34	Hi 40 Me 38 Lo 36	Hi 45 Me 42 Lo 39
External dimensions (H x W x D)	mm	unit 248x570x570 panel 35x700x700				
Net weight	kg	unit 14 panel 3,5		unit 15 panel 3,5		
Air flow (standard)	CMM	Hi 9,5 Me 8,5 Lo 8		Hi 10 Me 9 Lo 8	Hi 11 Me 10 Lo 9	Hi 13 Me 11,5 Lo 10
Fresh air intake		Not possible				
Panel		TC-PSA-24W-ER				
Air filter Type and Q'ty		Washable plastic mesh x 1				
Remote Control		Wired remote control RC-E3, RCH-E3; RCN-TC-24W-ER Wireless				
Refrigerant piping size	mm (in)	Liquid line 6,35 (1/4") Gas line 9,52 (3/8")		Liquid line 6,35 (1/4") Gas line 12,7 (1/2")		

FDTW - 2 way Cassette



compact design

28,7 cm (2,8~5,6 kW)



7 capacities (2,8~14,0 kW)

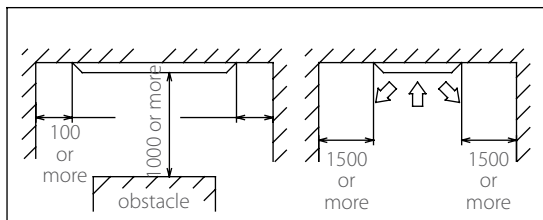
Completely installed within a false ceiling, this unit is particularly suited for uniform air distribution in rectangular locations

Ultra compact design with only 28,7 cm height (2,8~5,6 kW models)

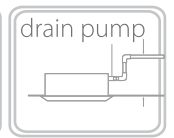
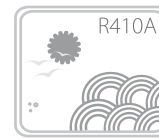
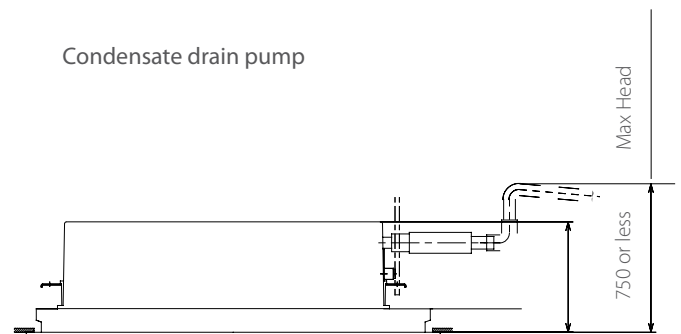


Space for installation and service

Maintain a distance of 4000 mm or more between units when installing more than one.

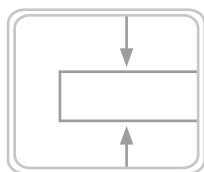


Condensate drain pump



Model		FDTW28KXE6	FDTW45KXE6	FDTW56KXE6	FDTW71KXE6	FDTW90KXE6	FDTW112KXE6	FDTW140KXE6
Nominal cooling capacity	kW	2,8	4,5	5,6	7,1	9,0	11,2	14,0
Nominal heating capacity	kW	3,2	5,0	6,3	8,0	10,0	12,5	16,0
Power supply		1 Phase 220~240V, 50Hz/220V, 60Hz						
Power cons. (cooling)	kW	0,09-0,10			0,10-0,11	0,12-0,13	0,18-0,20	0,20-0,24
Power cons. (heating)	kW	0,09-0,10			0,10-0,11	0,12-0,13	0,18-0,20	0,20-0,24
Sound pressure level	dB(A)	Hi 39 Me 34 Lo 32			Hi 41 Me 36 Lo 35	Hi 41 Me 37 Lo 36	Hi 44 Me 38 Lo 37	Hi 45 Me 41 Lo 39
External dimensions (H x W x D)	mm	unit 287x817x620 panel 8x1055x680			unit 342x1054x620 panel 8x1300x680		unit 357x1524x620 panel 8x1770x680	
Net weight	kg	unit 18 panel 7	unit 19 panel 7		unit 26 panel 9		unit 38 panel 11	
Air flow (standard)	CMM	Hi 14 Me 12 Lo 10			Hi 16 Me 13 Lo 11	Hi 19 Me 16 Lo 12	Hi 28 Me 25 Lo 23	Hi 32 Me 28 Lo 24
Fresh air intake		Possible						
Panel		TW-PSA-24W-E			TW-PSA-34W-E		TW-PSA-44W-E	
Air filter Type and Q'ty		Washable plastic mesh x 1					Washable plastic mesh x 2	
Remote Control		Wired remote control RC-E3; RCH-E3; RCN-KIT3-E Wireless						
Refrigerant piping size	mm (in)	liq. line 6,35 (1/4") Gas line 9,52 (3/8")	Liquid line 6,35 (1/4") Gas line 12,7 (1/2")		Liquid line 9,52 (3/8") Gas line 15,88 (5/8")			

FDTs - 1 way Cassette



compact design

19,4 cm



2 capacities (4,5 and 7,1 kW)

Suitable for surface mounting or installation within a suspended ceiling

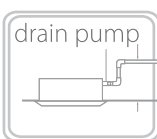
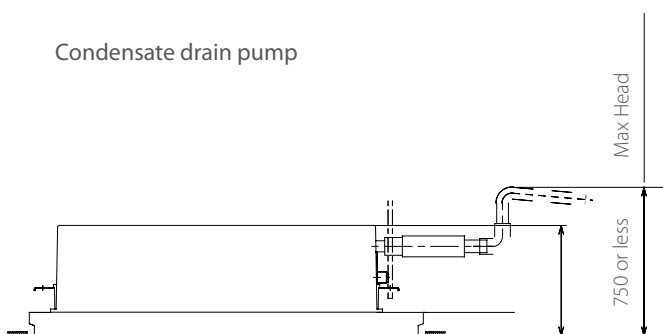
Extremely compact dimensions, with only 19,4 cm height, ideal for applications where space above the soffit is restricted

Powerful airflow for good air distribution in applications with high ceilings

Fresh air intake connection available

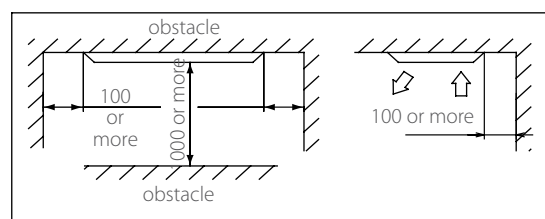


Condensate drain pump



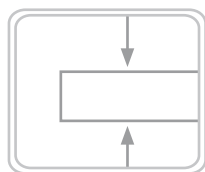
Space for installation and service

Maintain a distance of 4000 mm or more between units when installing more than one.



Model		FDTs45KXE6	FDTs71KXE6
Nominal cooling capacity	kW	4,5	7,1
Nominal heating capacity	kW	5,0	8,0
Power supply		1 Phase 220~240V, 50Hz/220V, 60Hz	
Power cons. (cooling)	kW	0,09-0,11	0,12-0,15
Power cons. (heating)	kW	0,09-0,11	0,12-0,15
Sound pressure level	dB(A)	Hi 43 Me 38 Lo 36	Hi 44 Me 38 Lo 36
External dimensions (H x W x D)	mm	unit 194x1040x650 panel 10x1290x770	unit 194x1300x650 panel 10x1500x770
Net weight	kg	unit 27 panel 6	unit 31 panel 7
Air flow (standard)	CMM	Hi 14 Me 12 Lo 10	Hi 18 Me 15 Lo 12
Fresh air intake		Possible	
Panel		TS-PSA-29W-E	TS-PSA-39W-E
Air filter Type and Q'ty		Washable plastic mesh x 2	Washable plastic mesh x 3
Remote Control		Wired remote control RC-E3, RCH-E3; RCN-KIT3-E Wireless	
Refrigerant piping size	mm (in)	Liquid line 6,35 (1/4") Gas line 12,7 (1/2")	Liquid line 9,52 (3/8") Gas line 15,88 (5/8")

FDTQ - 1 way Cassette compact



compact design

25 cm



3 capacities (2,2~3,6 kW)

Low static pressure ducted unit

Suitable for installation in all types of soffit ceiling

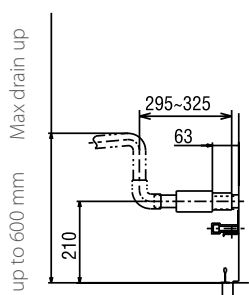
Ideal for small rooms, with an airflow of only 5,4 m³/min

Panel for cassette type installation, panel for ducted installation

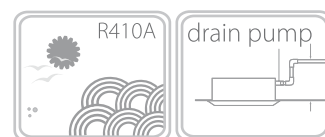
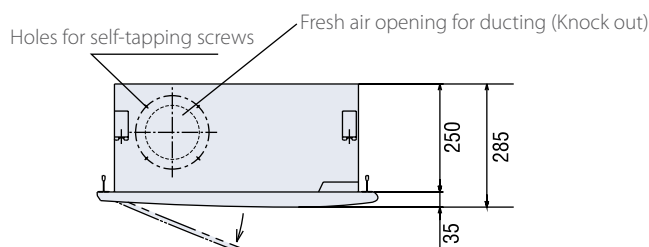
Panel includes motorised louvres for comfortable air distribution

Standard condensate drain pump

Condensate drain pump included as standard

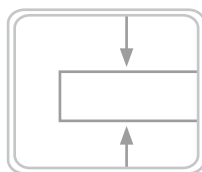


Ultra compact design



Model		FDTQ22KXE6		FDTQ28KXE6		FDTQ36KXE6	
Panel		Cassette type	Duct type	Cassette type	Duct type	Cassette type	Duct type
Panel model		TQ-PSA-15W-E	QR-PNA-14W-ER	TQ-PSA-15W-E	QR-PNA-14W-ER	TQ-PSA-15W-E	QR-PNA-14W-ER
Nominal cooling capacity	kW	2,2		2,8		3,6	
Nominal heating capacity	kW	2,5		3,2		4,0	
Power supply		1 Phase 220~240V, 50Hz/220V, 60Hz					
Power cons. (cooling)	kW	0,04-0,05		0,04-0,05		0,04-0,05	
Power cons. (heating)	kW	0,04-0,05		0,04-0,05		0,04-0,05	
Sound pressure level	dB(A)	Hi 38 Lo 33	Hi 42 Lo 39	Hi 38 Lo 33	Hi 42 Lo 39	Hi 38 Lo 33	Hi 42 Lo 39
External dimensions I.U.	mm	250x570x570					
(H x W x D) Panel		35x625x650					
Net weight	kg	I.U. 19 p. 2,5					
Air flow (standard)	CMM	Hi 7 Lo 5,4	Hi 7 Lo 6,5	Hi 7 Lo 5,4	Hi 7 Lo 6,5	Hi 7 Lo 5,4	Hi 7 Lo 6,5
Fresh air intake		Possible					
Air filter Type & Q'ty		Washable plastic mesh x 1					
Remote control		Wired remote control RC-E3, RCH-E3; RCN-KIT3-E Wireless					
Refrigerant piping size	mm (in)	Liquid line 6,35 (1/4") Gas line 9,52 (3/8")				Liquid line 6,35 (1/4") Gas line 12,7 (1/2")	

FDU - Duct connected High Pa



compact design

29,5 cm (7,1 kW)
35 cm (9,0~14,0 kW)
36 cm (22,4~28,0 kW)



6 capacities (7,1~28,0 kW)

Ducted high static pressure

Return air intake from rear or from below

Static pressure up to 130 Pa (7,1~14,0 kW) and up to 200 Pa (22,4~28,0 kW)

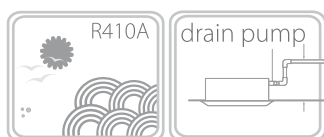
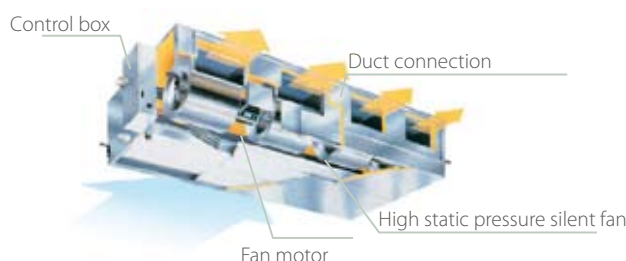
Compact dimensions: height only 29.5 cm (7,1 kW), 35 cm (9,0~14,0 kW) and 36 cm (22,4~28,0 kW)

Standard condensate drain pump with 60 cm head (7,1~14,0 kW)



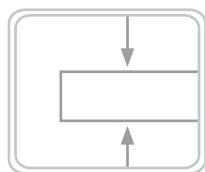
High static pressure

The air flow can be set at 16 different speeds for improved comfort settings in every environment, using the optional airflow control U-FCDA for the 22,8 and 28,0 kW models.



Model		FDU71KXE6	FDU90KXE6	FDU112KXE6	FDU140KXE6	FDU224KXE6	FDU280KXE6
Nominal cooling capacity	kW	7,1	9,0	11,2	14,0	22,4	28,0
Nominal heating capacity	kW	8,0	10,0	12,5	16,0	25,0	31,5
Power supply		1 Phase 220~240V, 50Hz					
Power cons. (cooling)	kW	0,29-0,32	0,35-0,39	0,39-0,45		0,94-1,03	0,96-1,05
Power cons. (heating)	kW	0,27-0,30	0,34-0,38	0,34-0,39		0,86-0,90	0,88-0,96
Sound pressure level	dB(A)	Hi 41 Lo 37	Hi 42 Lo 37	Hi 42 Lo 38	Hi 43 Lo 39	Hi 51	Hi 52
External dimensions (H x W x D)	mm	295x850x650	350x1370x650			360x1570x830	
Net weight	kg	40	63			92	
Air flow (standard)	CMM	Hi 25 Lo 20	Hi 34 Lo 27		Hi 42 Lo 33,5	Hi 51	Hi 68
Available Static Pressure	Pa	Standard 50 max 130				Standard 100 max 200	
Fresh air intake		Possible					
Air filter Type & Q'ty		Procure locally					
Remote control		Wired remote control RC-E3, RCH-E3; RCN-KIT3-E Wireless					
Refrigerant piping size	mm (in)	Liquid line 9,52 (3/8") Gas line 15,88 (5/8")				Liquid line 9,52 (3/8") Gas line 19,05 (3/4")	Liquid line 9,52 (3/8") Gas line 22,22 (7/8")

FDUM - Duct connected Medium Pa



compact design

29,9 cm (2,2~9,0 kW)



9 capacities (2,2~14,0 kW)

Medium static pressure

Ideal for air conditioning small and medium sized environments

Compact dimensions with only 29,9 cm height (2,2~9,0 kW)

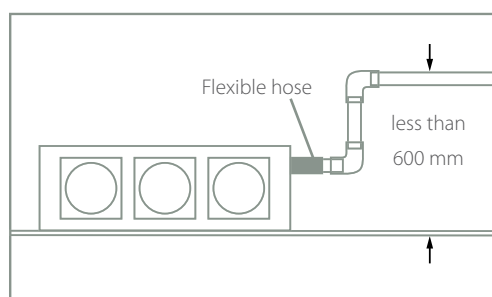
Standard condensate drain pump with 60 cm head

Low noise levels: only 28 dB(A) (2,2~3,6 kW)

Optional Filter Kit UM-FL1E (FDUM 22~56), UM-FL2E (FDUM 71, 90), UM-FL3E (FDUM 112, 140)

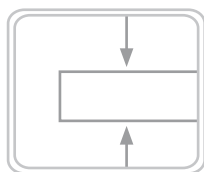
Condensate drain pump included as standard

Drain can be discharged upwards by 600 mm from the ceiling surface. It allows a piping layout with an high degree of freedom depending on the installation location.



Model		FDUM22KXE6	FDUM28KXE6	FDUM36KXE6	FDUM45KXE6	FDUM56KXE6	FDUM71KXE6	FDUM90KXE6	FDUM112KXE6	FDUM140KXE6
Nominal cooling capacity	kW	2,2	2,8	3,6	4,5	5,6	7,1	9,0	11,2	14,0
Nominal heating capacity	kW	2,5	3,2	4,0	5,0	6,3	8,0	10,0	12,5	16,0
Power supply		1 Phase 220~240V, 50Hz								
Power cons. (cooling)	kW	0,09-0,11	0,11-0,13		0,14-0,16		0,15-0,17	0,16-0,19	0,24-0,28	0,28-0,32
Power cons. (heating)	kW	0,09-0,11	0,11-0,13		0,14-0,16		0,15-0,17	0,16-0,19	0,24-0,28	0,28-0,32
Sound pressure level	dB(A)	Hi 33 Me 31 Lo 28	Hi 34 Me 31 Lo 28		Hi 35 Me 32 lo 29			Hi 36 Me 33 Lo 30	Hi 37 Me 35 Lo 32	Hi 38 Me 36 Lo 33
External dimensions (H x W x D)	mm	299x750x635					299x950x635		350x1370x635	
Net weight	kg	33	34				40		59	
Air flow (standard)	CMM	Hi 10 Me 9 Lo 8	Hi 12 Me 11 Lo 10		Hi 14 Me 12 Lo 11		Hi 18 Me 16 Lo 14	Hi 20 Me 18 Lo 15	Hi 28 Me 25 Lo 22	Hi 34 Me 31 Lo 27
Available Static Pressure	Pa	Standard 50 max 85							Standard 60 max 85	
Fresh air intake		Possible								
Air filter Type & Q'ty		Optional								
Remote control		Wired remote control RC-E3, RCH-E3; RCN-KIT3-E Wireless								
Refrigerant piping size	mm (in)	Liquid line 6,35 (1/4") Gas line 9,52 (3/8")		Liquid line 6,35 (1/4") Gas line 12,7 (1/2")			Liquid line 9,52 (3/8") Gas line 15,88 (5/8")			

FDQS - Duct concealed (ultra thin)



compact design

18 cm



5 capacities (2,2~5,6 kW)

Ideal for hotels, hospitals, and small offices

Ultra thin design with only 18 cm height, ideal for applications with restricted height

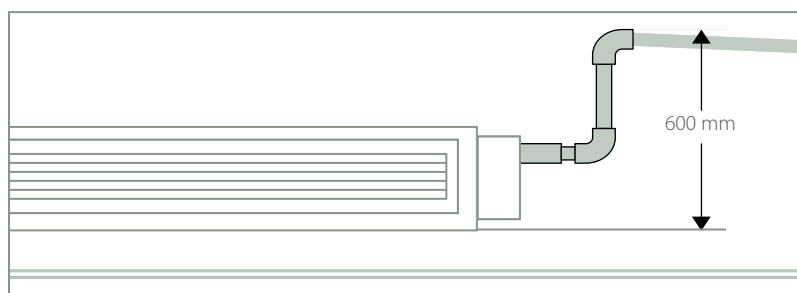
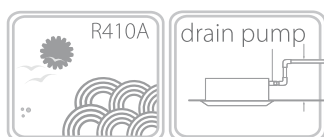
Extremely light, only 27 kg (2,2~2,8kW) and 28 kg (3,6~5,6 kW) for easy transport and quick installation

Standard condensate drain pump with 60 cm head

Optional Filter Kit QS-FL1E

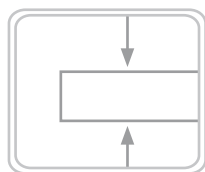
Condensate drain pump included as standard

Standard condensate drain pump with 600 mm head allows for greater flexibility in layout and installation.



Model		FDQS22KXE6	FDQS28KXE6	FDQS36KXE6	FDQS45KXE6	FDQS56KXE6
Nominal cooling capacity	kW	2,2	2,8	3,6	4,5	5,6
Nominal heating capacity	kW	2,5	3,2	4,0	5,0	6,3
Power supply		1 Phase 220~240V, 50Hz/220V, 60Hz				
Power cons. (cooling)	kW	0,06-0,07		0,07-0,08		0,08-0,09
Power cons. (heating)	kW	0,06-0,07		0,07-0,08		0,08-0,09
Sound pressure level	dB(A)	Rear air return Hi 37 Me 35 Lo 33 Bottom air return Hi 43 Me 41 Lo 39				
External dimensions (H x W x D)	mm	180x940x580				
Net weight	kg	27		28		
Air flow (standard)	CMM	Hi 9 Me 8 Lo 7,5		Hi 9 Me 8 Lo 7,5	Hi 11 Me 10 Lo 9	
Available Static Pressure	Pa	Standard 15 max 30				
Fresh air intake		Not possible				
Air filter Type & Q'ty		Optional				
Remote control		Wired remote control RC-E3, RCH-E3; RCN-KIT3-E Wireless				
Refrigerant piping size	mm (in)	Liquid line 6,35 (1/4") Gas line 9,52 (3/8")		Liquid line 6,35 (1/4") Gas line 12,7 (1/2")		

FDUH - Duct connected compact



compact design

25,7 cm



3 capacities (2,2~3,6 kW)

Compact dimensions with only 25,7 cm height

Flexible installation with controls and drain connections possible on either side of the unit

Return air flow from the rear or from beneath

Optional condensate drain pump kit UH-DU-E

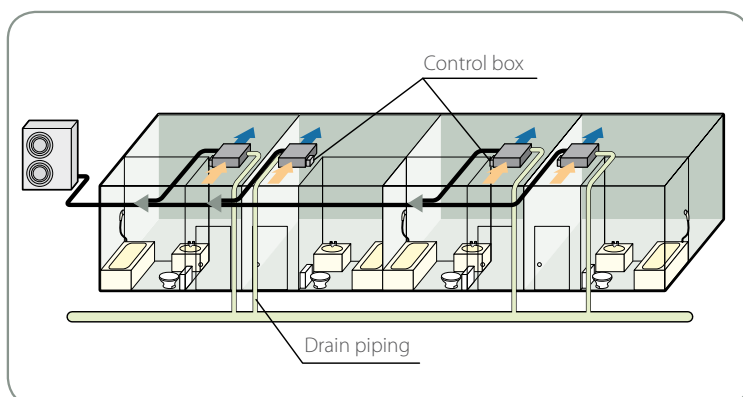


The ideal solution for air conditioning in hotels with compact reduced height units and high energy efficiency. In addition the units weigh just 20 kg.

The control box and drain piping can be installed on either side of the unit and air intake to the unit is available from bottom or rear.

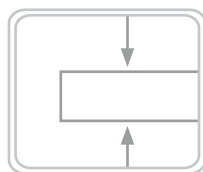
The lowest available sound levels ensure comfort and silent operation, particularly suited for hotel room applications.

Also suited to hotel rooms is the simplified remote controller, with control functions limited to the minimum required, such as ON/OFF, mode, temperature setting, and fan speed, make the unit particularly user friendly.



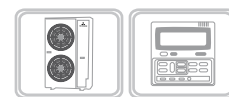
Model		FDUH22KXE6	FDUH28KXE6	FDUH36KXE6
Nominal cooling capacity	kW	2,2	2,8	3,6
Nominal heating capacity	kW	2,5	3,2	4,0
Power supply		1 Phase 220~240V, 50Hz/220V, 60Hz		
Power cons. (cooling)	kW	0,050-0,055/0,053		
Power cons. (heating)	kW	0,050-0,055/0,053		
Sound pressure level	dB(A)	Hi 33 Me 30 Lo 27		
External dimensions (H x W x D)	mm	257x570x530		
Net weight	kg	20		
Air flow (standard)	CMM	Hi 7 Me 6,5 Lo 6		
Available Static Pressure	Pa	30		
Fresh air intake		-		
Air filter Type & Q'ty		Installed on site		
Remote control		Wired remote control RC-E3, RCH-E3; RCN-KIT3-E Wireless		
Refrigerant piping size	mm (in)	Liquid line 6,35		
		Gas line 9,52 (3/8")		Gas line 12,7 (1/2")

FDU F - Outdoor Air Processing unit



compact design

36 cm



4 capacities (9,0~28,0 kW)

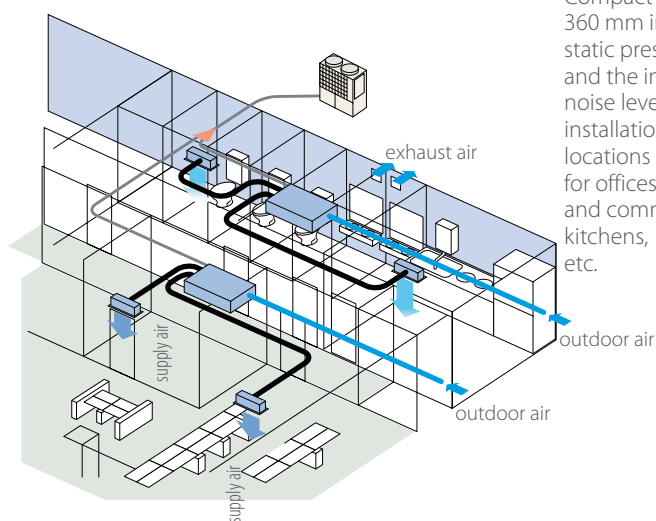
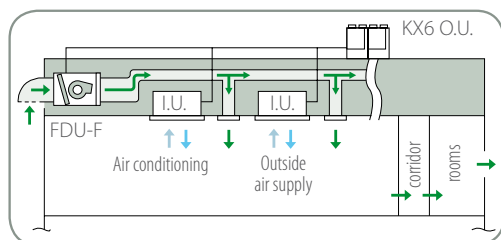
Static pressure up to 200 Pa

Optional air flow Control Kit U-FCRB

Standard condensate drain pump

Air conditioning and intake of outdoor air are in the same system

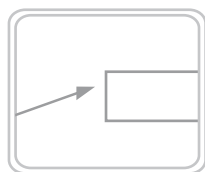
Outdoor Air processing unit can be connected in a KX6 system as one of indoor unit series.



Compact design at just 360 mm in height, high static pressure of 200 Pa and the industry's lowest noise level are ideal for installation in various locations such as for offices, restrooms, and commercial kitchens, etc.

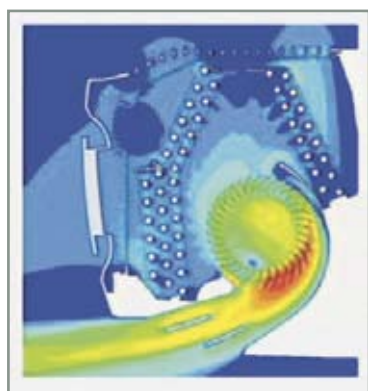
Model		FDU500FKXE6	FDU850FKXE6	FDU1300FKXE6	FDU1800FKXE6
Nominal cooling capacity	kW	9,0	14,0	22,4	28,0
Nominal heating capacity	kW	4,2	7,0	10,9	14,8
Power supply		1 Phase 220~240V, 50Hz/220V, 60Hz			
Power cons. (cooling)	kW	0,11	0,16	0,27	0,31
Power cons. (heating)	kW	0,11	0,16	0,27	0,31
Sound pressure level	dB(A)	43	46	48	51
External dimensions (H x W x D)	mm	360x820x830	360x1200x830	360x1570x830	
Net weight	kg	48	62	82	84
Air flow (standard)	CMM	8,5	14	22	30
	CMH	510	840	1320	1800
Available Static Pressure	Pa	Max 200			
Air filter Type & Q'ty		-			
Remote control		Wired remote control RC-E3; RCN-KIT3-E Wireless			
Refrigerant piping size	mm (in)	Liquid line 9,52 (3/8")		Liquid line 9,52 (3/8")	Liquid line 9,52 (3/8")
		Gas line 15,88 (5/8")		Gas line 19,05 (3/4")	Gas line 22,22 (7/8")

FDK - Wall Mounted



compact design

24,8 cm (7,1 kW)



6 capacities (2,2~7,1 kW)

Slim modern design for attractive installation in all applications

Compact dimensions: only 24,8 cm deep (7,1 kW)

Simplified maintenance and filter cleaning through an easily removable front panel

Optional infra red Remote Control Kit RCN-K-E (2,2~5,6 kW) and RCN-K71-E (7,1 kW)

The new design

The feature of the new FDK models is a design that minimizes the air flow losses (CFD analysis) ensuring a consistent distribution of conditioned air throughout the space. The new thinner design of just 24 cm in depth and 29,8 cm height allows easy and attractive installation even where available space is limited.

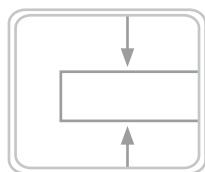
Easy Servicing

Cleaning the unit is very simple due to the convenient front panel which allows easy access to the removable filters.



Model		FDK22KXE6	FDK28KXE6	FDK36KXE6	FDK45KXE6	FDK56KXE6	FDK71KXE6
Nominal cooling capacity	kW	2,2	2,8	3,6	4,5	5,6	7,1
Nominal heating capacity	kW	2,5	3,2	4,0	5,0	6,3	8,0
Power supply		1 Phase 220~240V, 50Hz/220V, 60Hz					
Power cons. (cooling)	kW	0,05			0,05		0,09
Power cons. (heating)	kW	0,04			0,05		0,09
Sound pressure level	dB(A)	Hi 35 Me 33 Lo 31		Hi 39 Me 35 Lo 31	Hi 42 Me 37 Lo 33	Hi 46 Me 42 Lo 37	Hi 47 Me 43 Lo 39
External dimensions (H x W x D)	mm	298x840x259					318x1098x248
Net weight	kg	12			12,5	13	15,5
Air flow (standard)	CMM	Hi 8 Me 7 Lo 6		Hi 10 Me 9 Lo 7	Hi 11 Me 9 Lo 7	Hi 14 Me 12 Lo 10	Hi 21 Me 18 Lo 15
Fresh air intake		Not possible					
Air filter Type & Q'ty		Washable polypropylene mesh x 2					
Remote control		Wired remote control RC-E3, RCH-E3					
		RCN-K-E Wireless					RCN-K71-E Wireless
Refrigerant piping size	mm (in)	Liquid line 6,35 (1/4") Gas line 9,52 (3/8")		Liquid line 6,35 (1/4") Gas line 12,7 (1/2")			Liquid line 9,52 (3/8") Gas line 15,88 (5/8")

FDE - Ceiling Suspended



compact design

21 cm



6 capacities (3,6~14,0 kW)

Suitable for large spaces due to the powerful airflow

Compact dimensions: only 21 cm high (3,6~7,1 kW)

Quick and easy installation, with a weight of just 28 kg (3,6~5,8 kW)

Optional Infra Red Remote Control Kit RCN-E-E (optional)



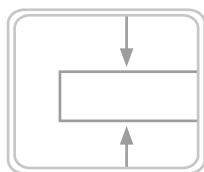
Installation Flexibility

Flexible installation: the refrigerant pipework can be installed in three different positions (on the back, on the top, to the right) as well as the drain pipework (on the left or right).



Model		FDE36KXE6A	FDE45KXE6A	FDE56KXE6A	FDE71KXE6A	FDE112KXE6A	FDE140KXE6A
Nominal cooling capacity	kW	3,6	4,5	5,6	7,1	11,2	14,0
Nominal heating capacity	kW	4,0	5,0	6,3	8,0	12,5	16,0
Power supply		1 Phase 220~240V, 50Hz/220V, 60Hz					
Power cons. (cooling)	kW	0,04-0,05			0,08-0,09	0,12-0,14	0,14-0,15
Power cons. (heating)	kW	0,04-0,05			0,07-0,08	0,11-0,13	0,13-0,14
Sound pressure level	dB(A)	Hi 39 Me 38 Lo 36			Hi 41 Me 39 Lo 37	Hi 44 Me 41 Lo 39	Hi 46 Me 44 Lo 43
External dimensions (H x W x D)	mm	210x1070x690			210x1320x690	250x1620x690	
Net weight	kg	28			37	49	
Air flow (standard)	CMM	Hi 11 Me 9 Lo 7			Hi 18 Me 14 Lo 12	Hi 26 Me 23 Lo 21	Hi 29 Me 26 Lo 23
Fresh air intake		Not possible					
Air filter Type & Q'ty		Washable plastic mesh x 2					
Remote control		Wired remote control RC-E3, RCH-E3; RCN-E-E Wireless					
Refrigerant piping size	mm (in)	Liquid line 6,35 (1/4") Gas line 12,7 (1/2")			Liquid line 9,52 (3/8") Gas line 15,88 (5/8")		

FDFL/FDFU - Floor Standing



compact design

63 cm



3 and 4 capacities (2,8~7,1 kW)

Wide airflow for optimum comfort

Compact design with just 63 cm height and 22,5 cm depth

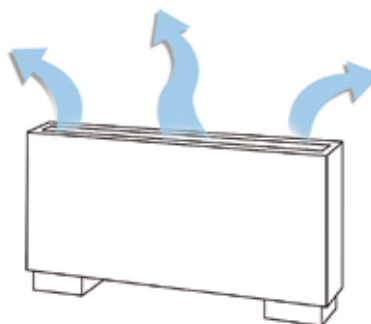


floor standing exposed



floor standing concealed

Optimal airflow distribution



Model		FDFL28KXE6	FDFL45KXE6	FDFL71KXE6	FDFU28KXE6	FDFU45KXE6	FDFU56KXE6	FDFU71KXE6
Nominal cooling capacity	kW	2,8	4,5	7,1	2,8	4,5	5,6	7,1
Nominal heating capacity	kW	3,2	5,0	8,0	3,2	5,0	6,3	8,0
Power supply		1 Phase 220~240V, 50Hz/220V, 60Hz						
Power cons. (cooling)	kW	0,09-0,10			0,09-0,10			
Power cons. (heating)	kW	0,09-0,10			0,09-0,10			
Sound pressure level	dB(A)	Hi 41 Me 38 Lo 36	Hi 43 Me 41 Lo 40		Hi 41 Me 38 Lo 36	Hi 43 Me 41 Lo 40		
External dimensions (H x W x D)	mm	630x1196x225		630x1481x225	630x1077x225			630x1362x225
Net weight	kg	32		40	25			32
Air flow (standard)	CMM	Hi 12 Me 11 Lo 10	Hi 14 Me 12 Lo 10	Hi 18 Me 15 Lo 12	Hi 12 Me 11 Lo 10	Hi 14 Me 12 Lo 10		Hi 18 Me 15 Lo 12
Fresh air intake		-						
Air filter Type & Q'ty		Washable polypropylene mesh x 1						
Remote control		Wired remote control RC-E3, RCH-E3; RCN-KIT3-E Wireless						
Refrigerant piping size	mm (in)	Liq. line 6,35 (1/4") Gas line 9,52 (3/8")	Liq. line 6,35 (1/4") Gas line 12,7 (1/2")	Liq. line 9,52 (3/8") Gas line 15,88 (5/8")	Liq. line 6,35 (1/4") Gas line 9,52 (3/8")	Liquid line 6,35 (1/4") Gas line 12,7 (1/2")		Liq. line 9,52 (3/8") Gas line 15,88 (5/8")



Individual Controls

- RG-E3 wired remote control
- RCH-E3 wired remote control
- RCN-KIT3-E wireless infrared remote control kit

Superlink II

- SC-SL 1N-E Central controller
- SC-SL 2N-E Central controller
- SC-SL3N-AE/BE LCD display central control panel
- SC-WGWN-A/B Web gateway
- SC-BGWN-A/B BACnet gateway
- SC-LGWN-A LONworks gateway

The **Micro KX system** permits the control of all **units** through the control **network**. The sophisticated control system allows the user to: **1. select** all functions from the indoor unit individual remote control from the central controller, or from the Superlink II network; **2. Enable** a remote ON/OFF function; **3. Define** user program modes.

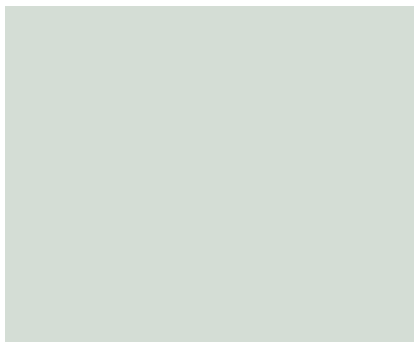
Individual Controls

Wired remote control with LCD display

Wired remote control with LCD display: the large display area and the clear LCD enables convenient access to operation and service data.

- Standard weekly timer function
- Room temperature sensor integrated in the remote control unit
- Adjustable set temperature ranges

RC-E3



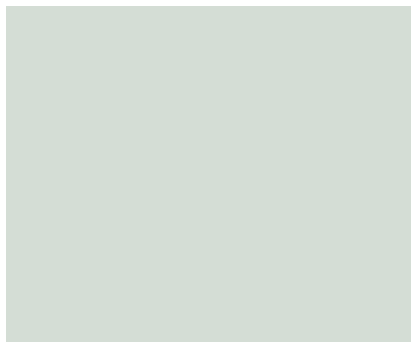
Basic wired remote control

Specifically suited for application in hotels and small offices, this wired controller is simple to use and provides the basic control functions

- On/Off
- Mode
- Temp. setting
- Fan speed
- Autorestart

The basic wired remote control allows the individual control of up to 16 indoor units.

RCH-E3



Wireless infrared remote control kit

Standard wireless infrared remote control sensor for the following models.

FDTW, FDTs, FDTQ, FDU, FDUM, FDQS, FDFL, FDU-F.

RCN-KIT3-E

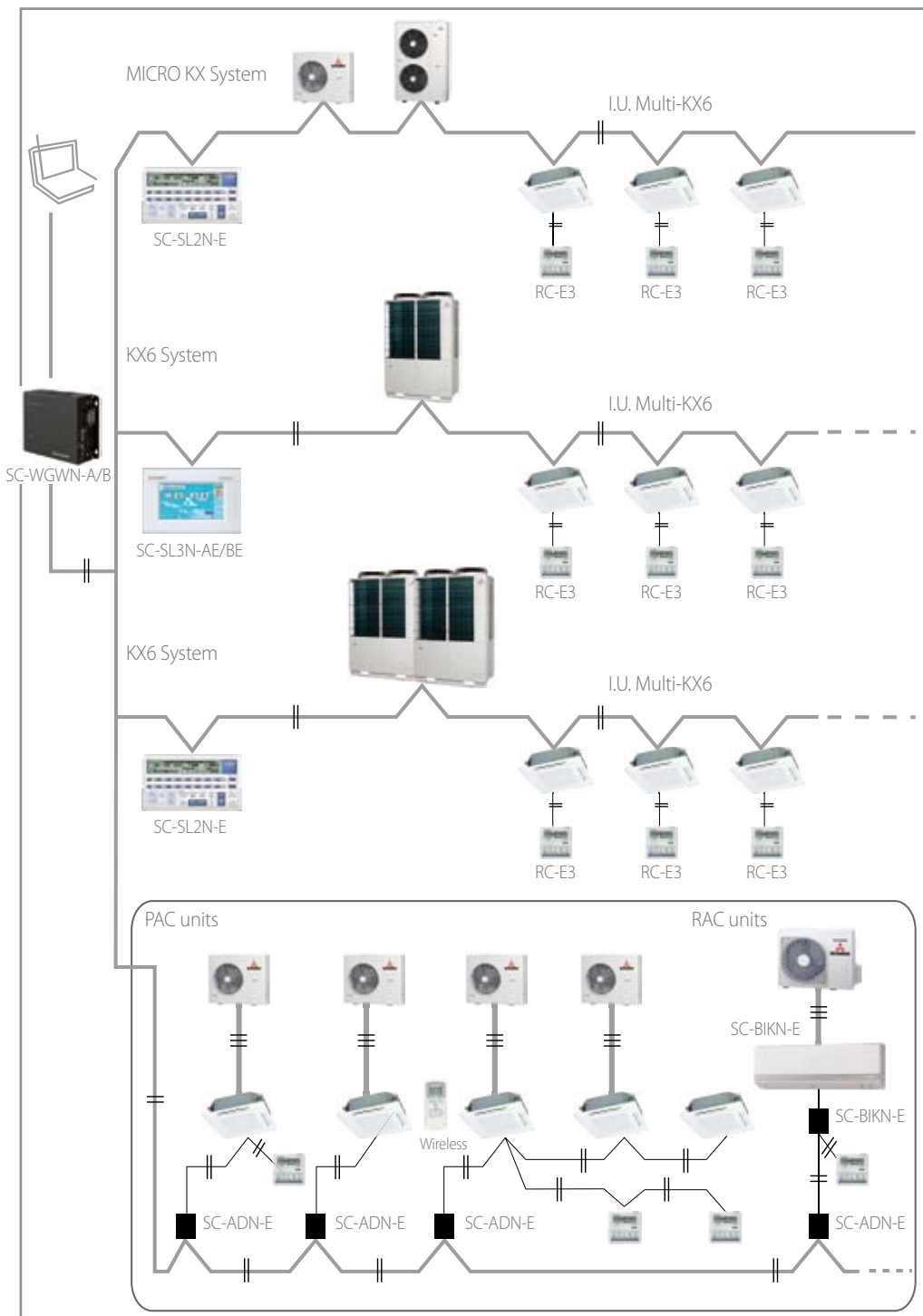


Superlink II

Superlink II Control System

Superlink-II is an advanced high speed data transmission network that can connect and control up to 128 indoor units. It is a comprehensive control and management system, capable of meeting the demands of building owners and occupiers in large or small applications.

The Superlink II control system is inexpensive to install utilising two wire non-polar cable for the complete network.



Mitsubishi Heavy Industries provides a wide range of control panels and systems for simple installation and highly sophisticated control **features**, permitting users to operate and maintain their air conditioning systems **efficiently** and **effectively**.

Mitsubishi Heavy Industries controls offer in-depth access to the air conditioning system data, guaranteeing the user **the most efficient equipment** available on the market.

Superlink II - Controls

Central controller

The SC-SL 1N-E central controller is connected to the Superlink II network via 2-core non-polar wires.

It will monitor and control the on/off function of up to 16 indoor units.

The unit numbers in operation or in need of service are indicated by specific LED's.

Up to 12 SC-SL1N-E central controllers can be installed with a Superlink II network, controlling a total of up to 128 indoor units.

SC-SL1N-E



Central controller

The SC-SL 2N-E central controller is connected to the Superlink II network via 2-core non-polar wires. It will monitor and control the on/off function of up to 16 indoor units, or 16 groups of units, for central control of up to 64 units.

It also monitors and controls the following functions for each unit, group of units, or the complete network: operation mode, temperature set point, louvre position, error code. The LCD display shows the unit or group numbers in operation and identifies those in need of service. The timer is connected to the central controller for on/off cycle control. The central controller can be connected at any point in the Superlink II network, at the indoor or outdoor units. This can substantially reduce the amount of electrical cabling required for the installation.

SC-SL2N-E



Central controller

The SC-SL3-AE/BE is a full colour touch screen central control with 7 inch interactive display. The central control panel provides control, monitoring, service and maintenance functions for all indoor units connected to the Superlink II network.

The SC-SL3N-BE offers

an electrical power consumption calculation function for each indoor unit or group.

It offers the possibility of exporting the data to a USB memory stick and editing and organising this data in an Excel spreadsheet. The necessary software is supplied with the central control panel.

SC-SL3N-AE/BE



Web gateway SC-WGWN-A SC-WGWN-B

This central control provides a simple management system for small and medium installations, including electrical power consumption data, and can be utilised for the control of up to 128 indoor units in up to 96 groups (64 indoor units x 2 Superlink II networks). Secure and simple to install, all that is required is Internet Explorer. An IP address filter function is included, together with three-level user authentication for security. **The SC-WGWN-B offers** an electrical power consumption calculation function for each indoor unit or group.



SC-WGWN-A
SC-WGWN-B

BACnet gateway SC-BGWN-A SC-BGWN-B

This interface device operates on the BACnet protocol for the central control of the air conditioning system on a BACnet network. It can be used for the interfacing of up to 128 indoor units in up to 96 groups (64 indoor units x 2 Superlink II networks).

The SC-BGWN-B offers an electrical power consumption calculation function for each indoor unit or group.



SC-BGWN-A
SC-BGWN-B

LONworks gateway SC-LGWN-A

This interface device allows the interfacing, monitoring, and control of the MHI indoor units on a LonWorks network, by converting the Superlink II communication data to the LonWorks protocol. It can be used for the control and monitoring of up to 96 indoor units, which is the highest number of units for a LonWorks system interface device available on the market.



SC-LGWN-A



Service maintenance and troubleshooting data can be easily accessed via the wired remote controller. A laptop computer can easily be connected to the outdoor unit for full access to all operating data of the system.



Convenient servicing and maintenance

All the units are designed for simple and convenient maintenance with internal compartmentalisation of the different functional areas within the unit, and easily removable panels for access.

The structural features of the unit allow that the air flow base functions as a drain pan flowing through the mechanical area. It is not necessary to have a separate drain pan for condensate drainage of the outdoor unit.

Checking the functional and operational state of the system can be done through the remote controller.

Any problem solving is made faster thanks to the possibility of gathering the operating data whether the unit is in normal operation, in fault mode, or in test mode. A PC can be connected to the unit for data collection.

The operating data can be downloaded and analysed statistically using the optional software programme.

The test mode can be activated with a switch on the electronic board of the outdoor unit, to check any installation errors.

Monitoring function

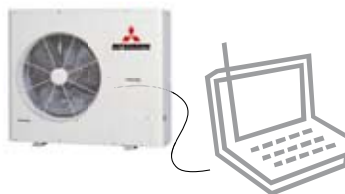
MICRO KX Ultra Compact series includes new features to assist with servicing and trouble shooting.

Various data can be monitored through the 3-digit display on the outdoor unit PCB.

Detailed fault diagnosis and operation history memory via 7-segment display.



Equipped with RS232C for connection directly to your PC monitoring and service tasks made simple with Mitsubishi Heavy Industries's service software ("Mente PC").



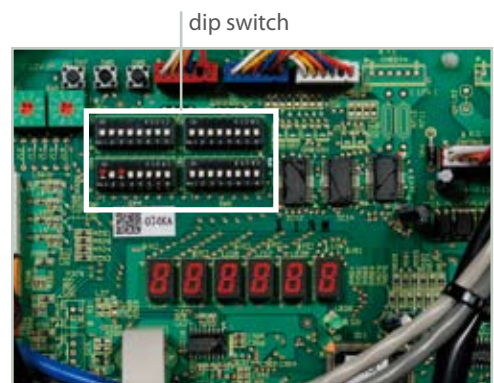
The outdoor unit PCB is also equipped with a **7 segment digital display** for showing error codes. In the event of a fault, the operation data is stored for the 30 minute period preceding the occurrence of the fault. This facilitates the fault finding process.

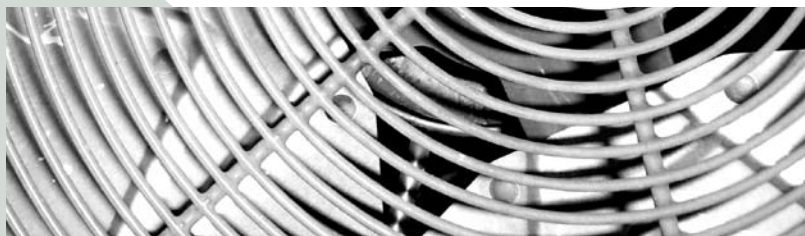


The test run on the outdoor unit can be used to **verify**:

Closing of the service valves
Incorrect refrigeration pipework connections
Incorrect wiring connections
EEV and valve operation.

This procedure **takes 15 to 30 minutes** and prevents the majority of faults arising from the installation.





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